

User Guide

hp StorageWorks Fabric Manager 4.1.x

Second Edition (January 2004)

Part Number: AA-RUQSB-TE

Fabric Manager is a powerful application that manages multiple HP StorageWorks switches and fabrics in real time. Fabric Manager provides the essential functions for efficiently configuring, monitoring, dynamically provisioning, and managing HP StorageWorks switch fabrics on a daily basis.



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Printed in the U.S.A.

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about this guide

This user guide provides comprehensive information to help you administer, operate, maintain, and troubleshoot HP StorageWorks Fabric Manager 4.1.x (note that *4.1.x* designates versions 4.1.0 and later).

The major topics discussed in this chapter are:

- [What's new in this edition](#) on page 17
- [Audience](#) on page 17
- [Related documentation](#) on page 18
- [Conventions](#) on page 18
- [Getting help](#) on page 20

What's new in this edition

This edition contains the following changes:

- Updated [System requirements](#) on page 23.
- Updated Installation procedures in [Chapter 2](#).
- Added [Edit view options for device ports](#) on page 220
- Added information on the [Device ports view](#) on page 236.
- Updated [Switches view](#) on page 250.

Audience

This document is intended for use by systems administrators and technicians.

Related documentation

For the latest information, documentation, and firmware releases, visit the HP StorageWorks website: <http://www.hp.com/country/us/eng/prodserv/storage.html>.

To access the technical documentation:

- Locate the **networked storage** section of the Web page.
- Under **networked storage**, go to the **by type** subsection.
- Click **SAN infrastructure**. The **SAN infrastructure** page displays.
- Locate the **fibre channel switches** section.
- Click the appropriate product name. The product overview page displays. Go to the **product information** section.
- Click **technical documents**.

For information about Fibre Channel standards, visit the Fibre Channel Industry Association website, located at <http://www.fibrechannel.org>.

Conventions

Conventions consist of [Document conventions](#) and [Text symbols](#).

Document conventions

The document conventions specified in [Table 1](#) apply in most cases.

Table 1: Document conventions

Element	Convention
Cross-reference links	Blue text: Figure 1
Menu items and buttons; key, tab, and box names (not window and dialog box titles)	Bold
Text emphasis and document titles (not CD titles) in body text	<i>Italics</i>
User input, commands, code, file, and directory names; and system responses (output and messages)	Monospace font
Command-line and code variables	<i>Monospace, italic font</i>
Web site addresses	Blue, underlined font: http://www.hp.com

Text symbols

The following symbols may be found in the text of this guide. They have the following meanings.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.



Caution: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

Note: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Getting help

If you still have a question after reading this guide, contact an HP authorized service provider or access our website: <http://www.hp.com>.

HP technical support

Telephone numbers for worldwide technical support are listed on the following HP website: <http://www.hp.com/support/>. From this website, select the country of origin.

Note: For continuous quality improvement, calls may be recorded or monitored.

Be sure to have the following information available before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

HP storage web site

The HP website has the latest information on this product, as well as the latest drivers. Access storage at: <http://www.hp.com/country/us/eng/prodserv/storage.html>. From this website, select the appropriate product or solution.

HP authorized reseller

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868
- Elsewhere, see the HP website for locations and telephone numbers: <http://www.hp.com>.

About Fabric Manager

1

This chapter discusses the following major topics:

- [System requirements](#) on page 23
- [Advantages](#) on page 25
- [Feature highlights](#) on page 25
- [Firmware versions](#) on page 29
- [Fabric Manager terms and concepts](#) on page 30

Introduction

Fabric Manager lets you manage your Storage Area Networks (SAN) from a single user interface. With this software, you can configure any aspect of your SAN. Fabric Manager encompasses multiple fabrics, all HP StorageWorks B-Series Fibre Channel switch types, and all firmware versions.

Use Fabric Manager to configure multiple switches simultaneously from one location. View the status of multiple devices in one window. Perform SAN-level maintenance without accessing switch after switch. Fabric Manager lets you administer all of the elements of your SAN from one point of entry.

Through its single-point SAN management platform, Fabric Manager facilitates the global integration and execution of management tasks across multiple fabrics—thereby lowering the overall cost of SAN ownership. As a result, it provides a flexible and powerful tool optimized to provide organizations with rapid access to critical SAN information.

Note: All switches in the fabric are represented in the main window of Fabric Manager, but only those with a Web Tools license can be managed through Fabric Manager.

Note: Fabric OS supports a maximum of five simultaneous HTTP sessions to any one switch. HTTP sessions are leveraged by every copy of Fabric Manager and Web Tools that are monitoring any one switch.

System requirements

Fabric Manager 4.1.x supports the following platforms:

- SAN Switch 8 and 16
- SAN Switch 2/8, 2/16, and 2/32
- Core Switch 2/64

For the following Fabric Manager functions to perform, TCP/UDP port numbers 111 (rpc mapping) and 600–1023 must not be blocked by a network firewall or proxy server:

- Set time
- Security
- Fabric Device Management Interface (FDMI)

You must enable HTTP protocol on every switch that you want to discover, monitor, and configure with Fabric Manager. In addition, for the following Fabric Manager features to run, you must enable HTTP on your SAN:

- Firmware download
- Sequenced reboot
- Port name change on switch
- License management
- Configuration handling
- Multi-fabric administration
- Topology and ISL monitoring

Some Fabric Manager features run only on particular firmware versions. [Table 2](#) specifies the minimum revision of firmware required for the features listed. For the latest versions of released firmware, visit the HP web site at <http://www.hp.com>.

Table 2: Firmware-specific features

Feature	Minimum Firmware
Port name change on a switch	3.1.0, 4.1.0
Topology; ISL monitoring	2.6.1, 3.0, 3.1.0, 4.0, 4.1.0
Security	2.6.1, 3.1.0, 4.1.0
Port swapping	4.1.0
FDML/HBA firmware download	3.1.0, 4.1.0

Fabric Manager client

The Fabric Manager client accesses switches under management through an Ethernet connection. If your client and server are on different machines, you must ensure that both machines (client and server) have access to switches.

Fabric Manager client runs on the following operating systems:

- Windows® 2000 Client
- Windows NT® 4.x
- Windows XP
- Solaris 2.7 Client with Windows 2000 Server
- Solaris 2.8 Client with Windows 2000 Server

Note: Web Tools require a Java™ Plug-In. Refer to your feature documentation to find the plug-in that you need.

Fabric Manager server

Fabric Manager server runs on the following operating systems:

- Windows 2000
- Windows XP
- Solaris 2.7 and 2.8

Note: Each Fabric Manager server can support up to five Fabric Manager clients.

Advantages

Fabric Manager is the complete SAN management power tool for SAN switches and provides the following advantages to administrators:

- Provides a highly scalable Java-based application that manages multiple switches and multiple fabrics in real-time.
- Assists SAN administrators with the configuration, monitoring, dynamic provisioning and daily management of SANs.
- Lowers the cost of SAN ownership by intuitively facilitating SAN management tasks.
- Saves time by enabling the global integration and execution of processes across multiple fabrics, through its single-point SAN management platform.
- Allows more effective management by providing rapid access to critical SAN information across both Fabric OS SANs and enhanced Fabric OS SANs.

Feature highlights

Fabric Manager provides features to help you quickly and easily maintain, monitor, and configure your SANs.

Discovery

This feature entails the following:

- Discovery of all switches
- Discovery of switches and fabrics through subnet scanning
- Device information, including FDMI data, if available
- Allowing users to select whether SAN elements are displayed by WWN, domain-port ID, IP address, or element name
- A tree view of elements organized by fabrics and switch-port groups
- Users choice of up to eight different predefined views
- A drill-down capability that allows detailed element information to be displayed
- Actions or elements that can be launched directly by the right mouse button
- Intelligent handling of fabric segmentation and merging

Grouping

SAN elements, such as switches and ports, can be aggregated into groups. Administration of these groups, such as enable and disable, can be accomplished en-masse. Elements can be in multiple groups. Groups can be nested to arbitrary depths. Groups can also be exported and imported, allowing them to be shared across multiple Fabric Manager client instances.

You can use Fabric Manager groups to:

- Simplify monitoring.
- Simplify management.
- Organize switches by function, switch type, firmware version, or any other criteria you choose.
- Create functional hierarchies of groups.

For more information, see Chapter 6, “[Grouping](#),” on page 83.

ISL monitoring

ISL checking monitors:

- Adding a new ISL to the fabric.
- Removing an ISL from the fabric.
- Removing all ISLs between two switches in a fabric.
- Plugging an existing ISL into a different port on the same switch.

For more information, see Chapter 13, “[ISL Checking](#),” on page 149.

Sequenced reboot

With Fabric Manager, you can define groups of switches to reboot simultaneously, then configure groups to reboot sequentially. Reboot groups let you simultaneously reboot switches that run the same firmware, serve the same function, reside in the same physical location, or share any other attribute by which you want to group them.

This feature enables the creation and saving of a sequence of rebooting groups of switches in a fabric, in a predetermined order. These sequences can be executed with different inter-sequence delays and with checks for fabric stability after reboot.

For more information, see Chapter 18, “[Sequenced Reboot](#),” on page 179.

Firmware and configuration download

Perform a Firmware Download with Fabric Manager to concurrently download firmware to multiple switches and (optionally) reboot the switches simultaneously or in sequence. Firmware and configuration download allows:

- Download across fabrics to all HP B-Series Fabric switches and firmware versions. Refer to the *HP StorageWorks SAN Design Reference Guide* for a list of B-Series Fabric switches. This document is available at: <http://h18006.www1.hp.com/products/storageworks/san/documentation.html>
- Configuration upload and download across fabrics to all HP B-Series Fabric switches and firmware versions

For more information, see Chapter 12, “[Firmware Download](#),” on page 145.

License management

Fabric Manager can display, store, load, and reload your license keys so that you do not lose them if your switch fails. For more information, see Chapter 7, “[Licensing](#),” on page 91.

Fabric merge checking

Allows you to perform a fabric merge check to determine whether you can merge two fabrics successfully. Fabric Manager provides the Fabric Merge Check feature to compare various configuration elements of two fabrics before you connect those fabrics. Fabric Manager extracts copies of configuration elements that can cause the fabric to segment and compares them in memory for inconsistency.

Fabric checking provides the ability to:

- Retrieve and save the current state of a fabric with respect to switch membership (as a baseline, for example).
- Retrieve and save complete ISL information on the fabric (including trunking information).
- Detect and display differences between the current and the saved states according to status levels set by the user.
- Merge compatibility and incompatibility across Zoning, security, and similar potentially conflicting areas.

For more information, see Chapter 15, “[Fabric Merge Check](#),” on page 161.

Fabric, switch, and port administration

These include the following features:

- Web Tools that can be invoked for a specific switch to do element management, such as switch administration, Fabric Watch, and performance monitoring.
- Naming of fabrics, switches, and ports.
- Enabling and disabling of switches and ports.
- The saving of switch login credentials for a specific session, so that users must authenticate themselves only once for a switch. The same credentials can be used across multiple switches.
- The maintenance of sessions once authentication with a switch has succeeded, including managing session expiration.
- Time synchronization across fabrics.

Topology

Use ISL and Fabric information (as populated in the object model) to generate various SAN elements and their relationships and links.

Events and status

These include the following features:

- Display of a list of events for each switch.
- Propagation of the events of an element (such as a switch) up to the fabric or user-defined switch group to allow aggregation of event data.
- Providing reasons for various statuses using sources, such as ISL checking, fabric checking, switch status, and connectivity.
- The reason field and event information are displayed together to make it easier to troubleshoot problems in the fabric.
- Monitoring and display of related events.
- Propagation of status upwards within groups (such as fabrics or user-defined element groups). The status of a fabric can be seen even when the Fabric Manager application is iconified.

At-a-glance and tabular views

These include the following:

- Thirteen levels of at-a-glance hierarchical views from a device level up to a SAN level, displaying aggregated data in user-selectable, reorderable, and expandable items.
- Dynamic views that are easily extendable and can be configured to display different data from the fabric data model.
- Filtering based on element type that can cascade starting from any point in the fabric element tree.
- A portgrid-specific table view that enables a user to quickly see all the F-ports in the fabric and the devices attached to them.

Data polling

Fabric Manager is a multi-threaded application that polls for information about various elements in the SAN at predetermined intervals.

Persistence

Fabric Manager persists some application-specific data across sessions. This data includes fabric, switch, port, and group names, fabric and group memberships, reboot sequences, and existing license keys.

Call Home support

Call Home support includes:

- A client side GUI that allows a user to configure the conditions that trigger a call-home action.
- Server monitoring of a user-configurable set of switches for changes and events in order to send a request for action based on configured parameters.

Firmware versions

Refer to the product support tables in the *HP StorageWorks SAN Design Reference Guide* for supported versions of firmware. This document is available at:

<http://h18006.www1.hp.com/products/storageworks/san/documentation.html>

Fabric Manager terms and concepts

[Table 3](#) presents Fabric Manager-specific terms and provides descriptions of each.

Table 3: Fabric Manager terms and concepts

Term	Definition
Baseline	The configuration (from a file or on a switch) to which you compare other configurations or that you download to one or more switches.
Direct connect remove	Event where you remove all ISLs between two switches.
Discovery	The process you perform to begin to monitor elements with Fabric Manager.
Export	Save content to a file to distribute settings to other users.
File log	The file where Fabric Manager stores log information. This log is not the log that opens when you click the Open FM Log icon.
Import	Open the contents of a file to add settings from other users.
Launch switch	The switch that uses the IP address that you type into the Address field when you discover a fabric. The name of the fabric matches the name of the launch switch unless you change the fabric name.
Logical group	A collection of switches or ports that you designate to monitor or maintain as a unit.
Pane	A sub-window that opens in Detail view and Summary view.
Stamp	A snapshot of the ISL topology of a fabric.
Configuration Timeout	Occurrence where a fabric does not stabilize within the amount of time that you configure during a sequenced reboot.
View	A Fabric Manager display.

Installing Fabric Manager

2

This chapter discusses the following major topics:

- [Installing Fabric Manager](#) on page 32
- [Launching Fabric Manager for the first time](#) on page 45
- [Registering Fabric Manager](#) on page 46
- [Uninstalling Fabric Manager](#) on page 46

Introduction

This section describes how to install the Fabric Manager client and server software on the supported operating systems.

Fabric Manager gives you the option of installing the following:

- Fabric Manager Server and Client
- Fabric Manager Client only
- Fabric Manager Server only

Installing Fabric Manager

When you install Fabric Manager over an existing version on a Windows system, the installer automatically finds the existing serial number and license key and attempts to validate them. If the serial number and license key are valid, the install skips the version selection panel and goes directly to the install set panel. The serial number and license key are saved.

If the serial number and license key are not valid, you must re-enter both the serial number and license key to install the full version of Fabric Manager.

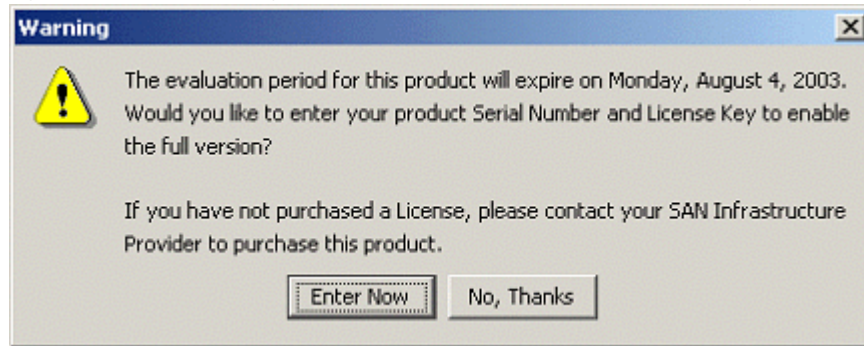
When you install Fabric Manager over an existing version on a UNIX® system, the installer prompts you to select the location where the existing version of Fabric Manager is installed. The installer then finds the existing serial number and license key and attempts to validate them. If the serial number and license key are valid, the installer skips the version selection panel and goes directly to the install set panel. The serial and license key are saved.

If the serial number and license key are not valid, you must re-enter both the serial number and license key to install the full version of Fabric Manager.

Note: If you currently have only Fabric Manager Server 4.x (or earlier) installed and you are upgrading to Fabric Manager 4.1.x (server only, client only, or server and client) or later, the installer prompts you to re-enter the license key and serial number.

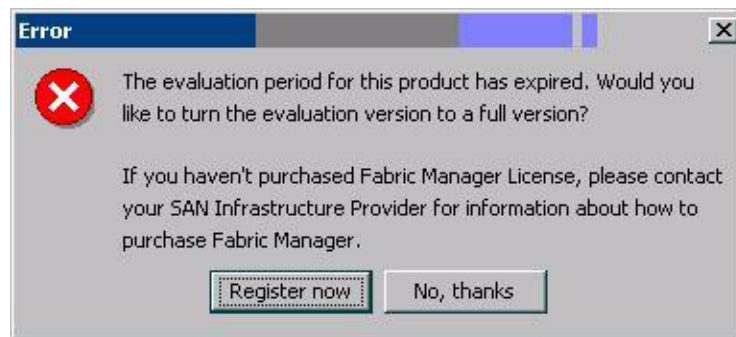
The first time you launch Fabric Manager, a warning message displays, notifying you when the evaluation installation is to expire, and giving you the option to register Fabric Manager or continue with the evaluation version (see [Figure 1](#)).

Figure 1: Fabric Manager evaluation installation version warning



The warning is displayed each time you launch Fabric Manager until you purchase a license key and use it to enable the full version. After the 60th day, the evaluation version expires and an error message is displayed when you launch the trial version of Fabric Manager (see [Figure 2](#)).

Figure 2: Fabric Manager evaluation installation version expiration notice



You have the option of registering the software to make it a full version, or discontinuing use of Fabric Manager.

Before the 60 days are up, you can convert your evaluation version to a full version by registering Fabric Manager. You can register Fabric Manager in any of the following ways:

- Click **Register Now** from the warning message displayed when you launch Fabric Manager during the 60 day evaluation period (see [Figure 1](#))

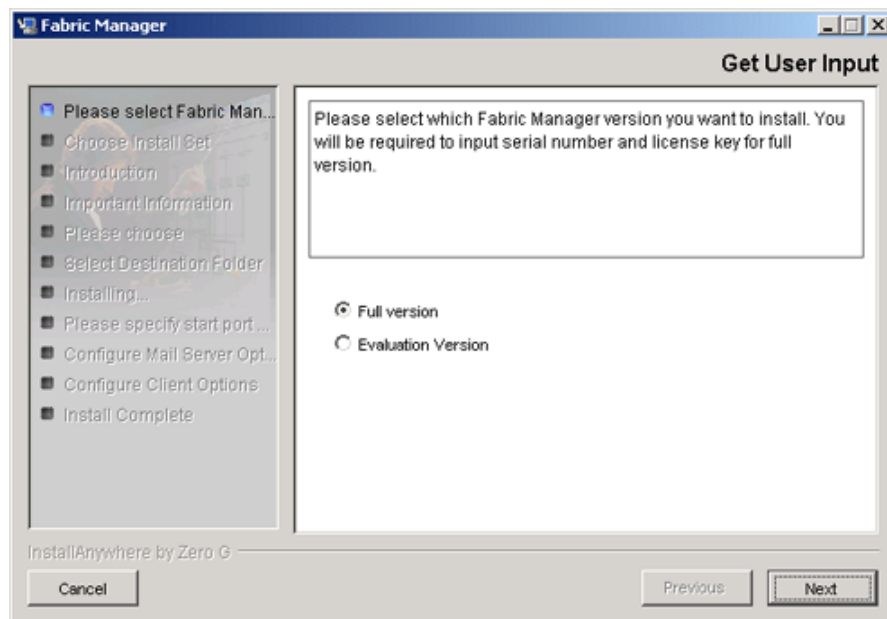
- Click **Register Now** from the error message that displays when you launch Fabric Manager after the 60 day evaluation period (see [Figure 2](#))
- Select **Register** from the Help menu in Fabric Manager. For detailed instructions, see “[Registering Fabric Manager](#)” on page 46.

Installing the client and server together

To install the Fabric Manager server and client at the same time, perform the following:

1. In the Windows environment, double-click the `Windows` folder from the Fabric Manager Installation CD-ROM.
2. In the Solaris environment, click `install.bin` from the File Manager window that displays when you insert the Fabric Manager Installation CD-ROM.
3. Double-click the **Install** icon. The `InstallAnywhere` dialog runs and then the Fabric Manager installation wizard displays (see [Figure 3](#)).

Figure 3: Fabric Manager installation wizard

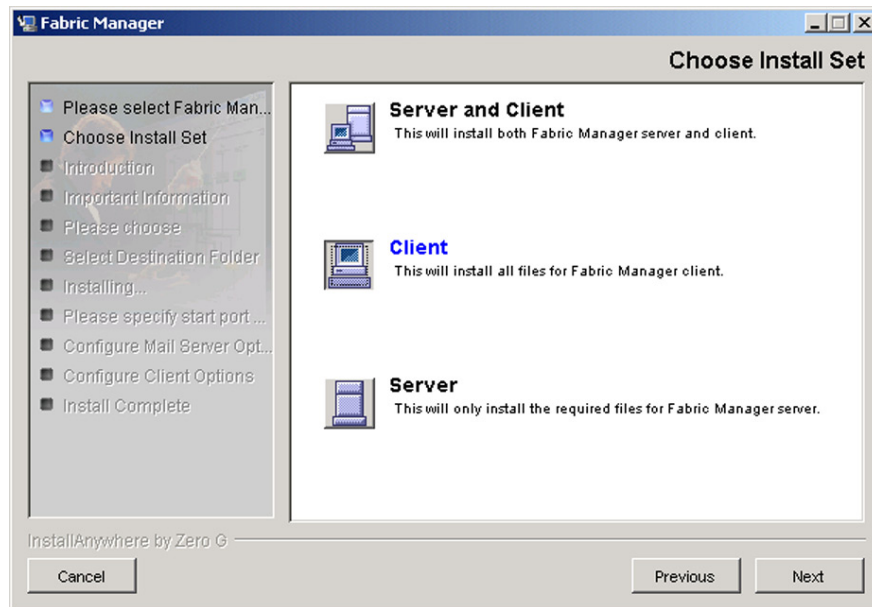


4. Select the version you would like to install (Evaluation or Full), and click **Next**. The **User Input** screen displays.

Note: A valid serial number and license key are required for a full installation. You cannot continue the full installation process without a valid serial number and license key.

5. Enter a valid serial number and license key, then click **Next**. You are then prompted to wait while Fabric Manager configures your system. The **Choose Install Set** screen displays (see [Figure 4](#)).

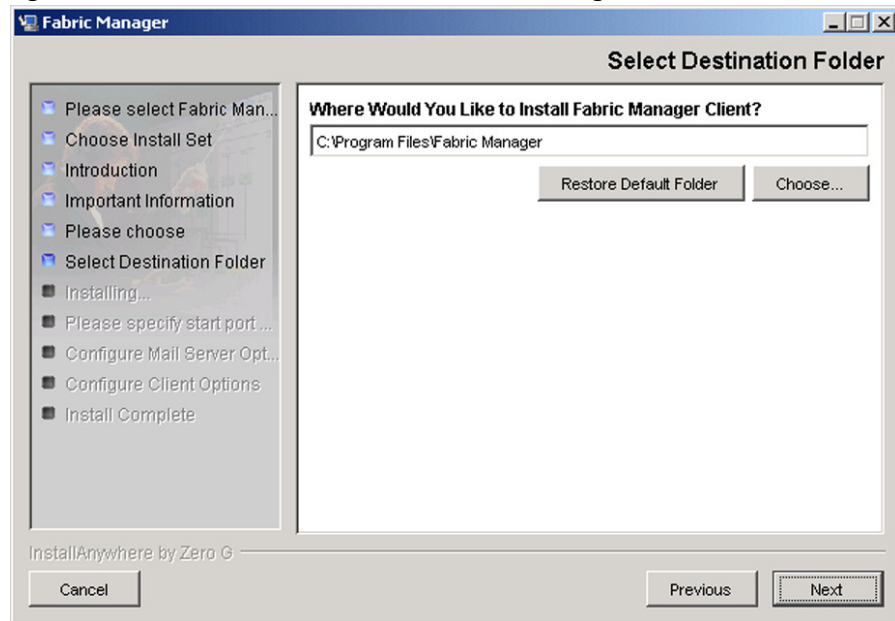
Figure 4: Choose install set screen



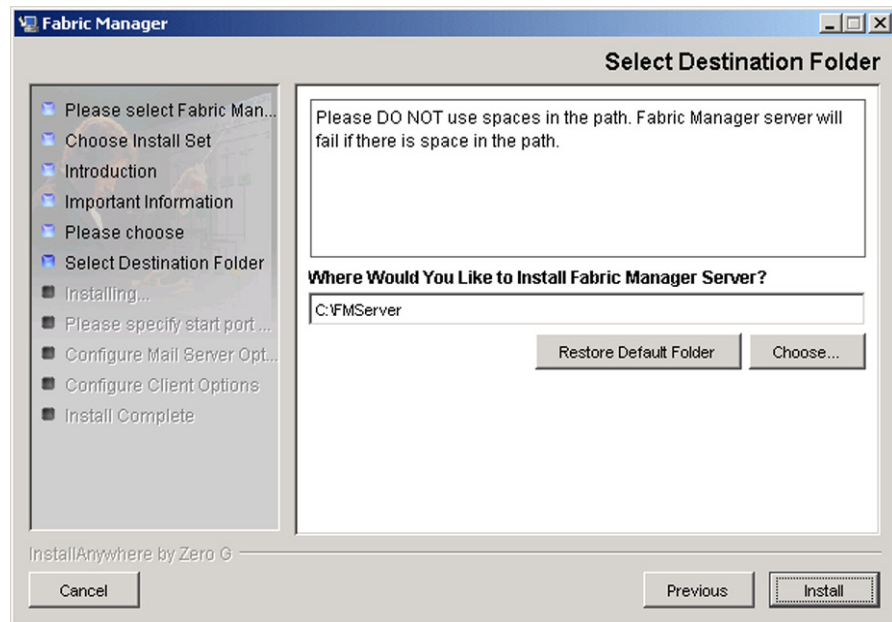
6. Click the **Server and Client** icon, and then click **Next**. The **Introduction** screen displays.
7. Read the Introduction and click **Next**. The **Important Information** screen displays.

8. Read the Important Information and click **Next**. The **Select Destination** (for Fabric Manager Client) screen displays (see [Figure 5](#)).

Figure 5: Select destination folder for Fabric Manager client



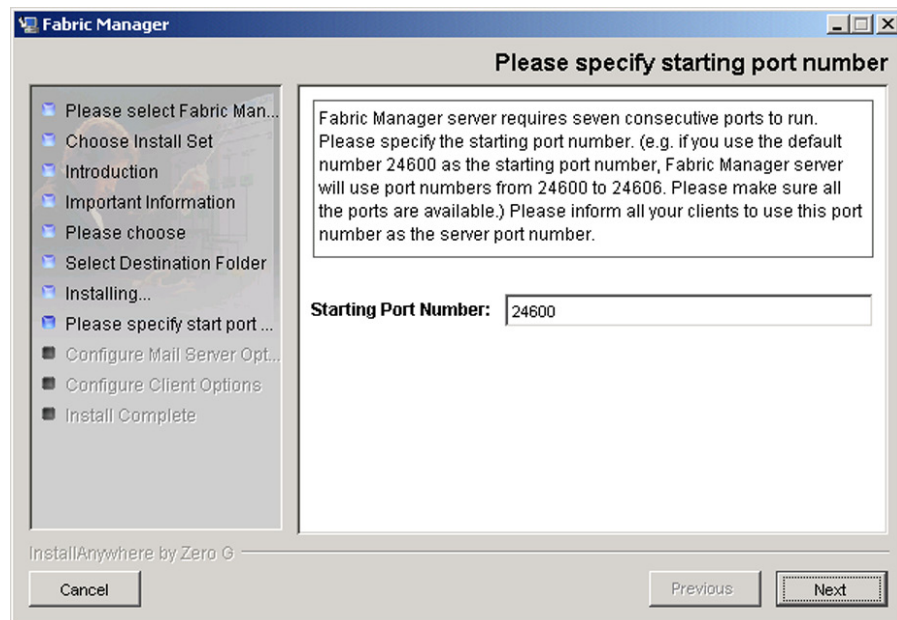
9. Select a location to install the Fabric Manager client. The default location is C:\Program Files\Fabric Manager.
10. Click **Choose** to browse to another location.
11. Click **Next**. The **Select Destination Folder** (for Fabric Manager Server) screen displays (see [Figure 6](#)).

Figure 6: Select destination folder for Fabric Manager server

12. Select a location to install the Fabric Manager server. The default location is C:\FMServer.
13. Click **Choose** to browse to another location.

Note: Do not include spaces in the directory path for the server.

14. Click **Install**. You are then prompted to wait while Fabric Manager configures your system. The **Please Specify Starting Port Number** screen displays (see [Figure 7](#)).

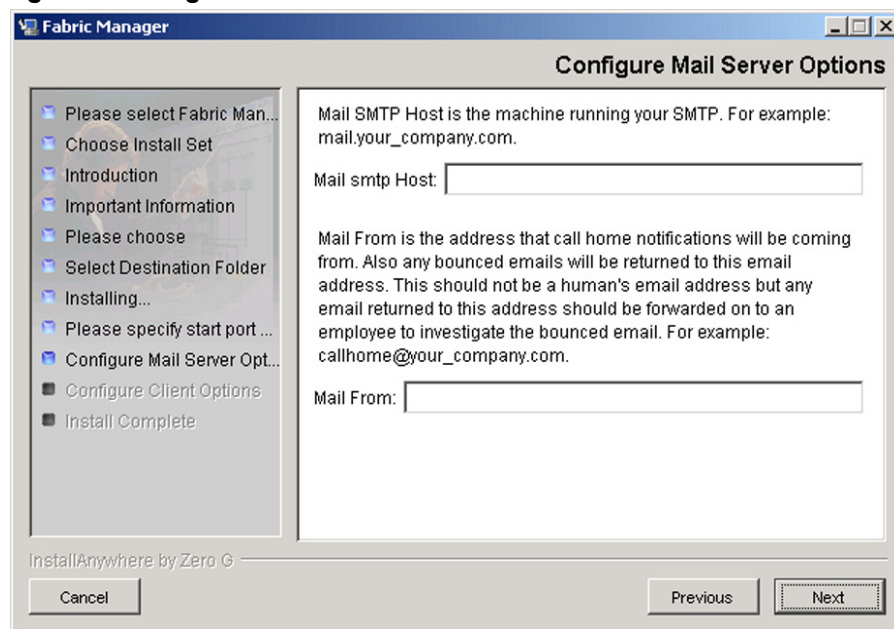
Figure 7: Specify starting port number for Fabric Manager server

15. Enter a starting port number.

Note: *The port number you enter, and the next six ports, must be free ports. If you do not enter a free port number, the server does not start up correctly.*

Make a note of the port number that you enter. When you install clients to access this server, you must use the same port number during the client installation.

16. Click **Next**. You are then prompted to wait while Fabric Manager configures your system. The **Configure Mail Server Options** screen displays (see [Figure 8](#)).

Figure 8: Configure mail server information

17. Enter the SMTP/mail server to which the Fabric Manager server sends the Call Home email notifications in the **Mail SMTP Host** field.
18. Enter the email address from which Call Home notifications are to arrive in the **Mail From** field.
19. Click **Next**.
Windows: The **Please Input Windows Domain Name** screen displays.
Solaris: The **Please Input NIS Hostname and Domain Name** screen displays.
20. Windows: Enter your Windows domain name.
Solaris: Enter your NIS hostname or IP address and domain name for the Fabric Manager server user authorization. If you do not specify an NIS server host name or IP address, and no NIS server exists on the same subnet as the Fabric Manager server, then all authentication requests to that server will fail.

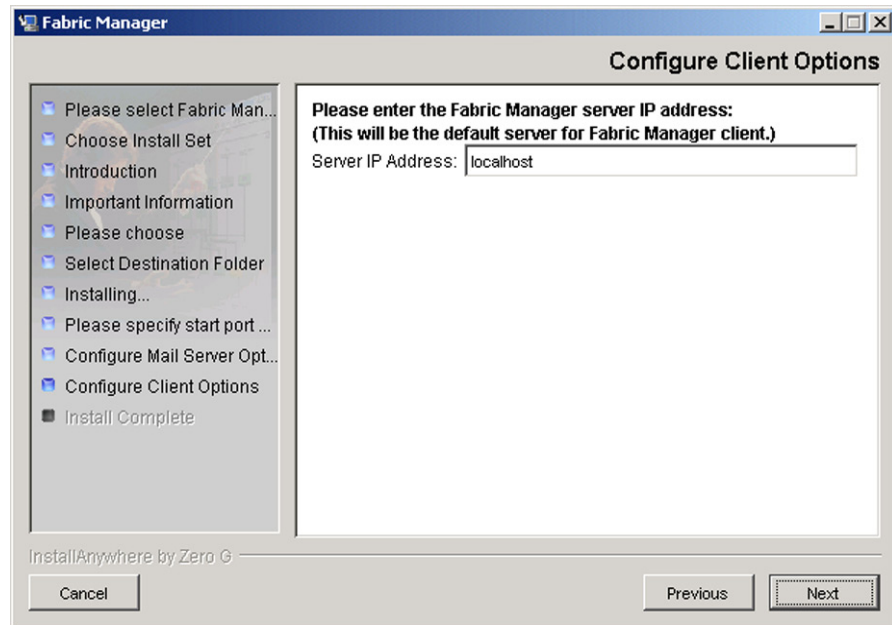
Valid domain names:

- Include no more than 67 characters (including .com, .net, and .org at the end).
- Include only alphanumeric values and dashes (-). Spaces and other characters are not permitted.
- Cannot begin or end with a dash.

Note: In a Windows environment, if the server workstation is not a member of the specified domain, Fabric Manager authentication succeeds for *any* user credentials (if the guest account on the workstation is enabled).

To ensure that the security of your Fabric Manager server is not compromised, make sure that your Windows guest user permissions are disabled and that your Fabric Manager server workstation is a member of the domain you specify during the Fabric Manager server installation. For instructions on disabling your Windows guest user permissions, refer to your Windows documentation.

21. Click **Next**. The **Important Information** screen displays.
22. Read the Important Information and then click **Next**. The **Configure Client Options** screen displays (see [Figure 9](#)).

Figure 9: Configure client options screen

23. Enter a Server IP Address, and then click **Next**. The **Install Complete** screen displays.
24. Click **Done**.

Installing the Fabric Manager server

To install the Fabric Manager server, execute the following procedure:

1. In the Windows environment, double-click the `Windows` folder from the Fabric Manager Installation CD-ROM.

In the Solaris environment, click `install.bin` from the File Manager window that displays when you insert the Fabric Manager Installation CD-ROM.

2. Double-click the **Install** icon. The `InstallAnywhere` dialog runs and then the **Fabric Manager** installation wizard displays (see [Figure 2](#) on page 33).
3. Select the version you would like to install (Evaluation or Full) and then click **Next**.

Note: A valid serial number and license key are required for a full installation. You cannot continue the full installation process without a valid serial number and license key.

4. Enter a valid serial number and license key and then click **Next**. You are then prompted to wait while Fabric Manager configures your system. The **Choose Install Set** screen displays (see [Figure 4](#) on page 35).
5. Click the **Server** icon and then click **Next**. The **Introduction** screen displays.
6. Read the Introduction information and then click **Next**. The **Select Destination Folder** screen displays.
7. Select a location to install the Fabric Manager Server. The default location is C:\FMServer.
8. Click **Choose** to browse to another location.

Note: Do not include spaces in the directory path for the server.

9. Click **Install**. You are then prompted to wait while Fabric Manager configures your system. The **Please Specify Starting Port Number** screen displays (see [Figure 7](#) on page 38).
10. Enter a starting port number.

Note: *The port number you enter, and the next six ports, must be free ports. If you do not enter a free port number, the server does not start up correctly.*

Make note of the port number that you enter. When you install clients to access this server, you must use the same port number during the client installation.

11. Click **Next**. You are then prompted to wait while Fabric Manager configures your system. The **Configure Mail Server Options** screen displays (see [Figure 8](#) on page 39).
12. Enter the SMTP/mail server to which the Fabric Manager server is to send the Call Home email notifications in the **Mail SMTP Host** field.
13. Enter the email address from which Call Home notifications are to arrive in the **Mail From** field; both are required.

14. Click **Next**. The **Please Input Windows Domain Name** screen displays.
15. Enter your Windows domain name.
16. Click **Next**. The **Important Information** screen displays.
17. Read the Important Information and then click **Next**. The **Install Complete** screen displays.
18. Check the **View Readme** checkbox if you would like to see the Readme file.
19. Click **Done**.

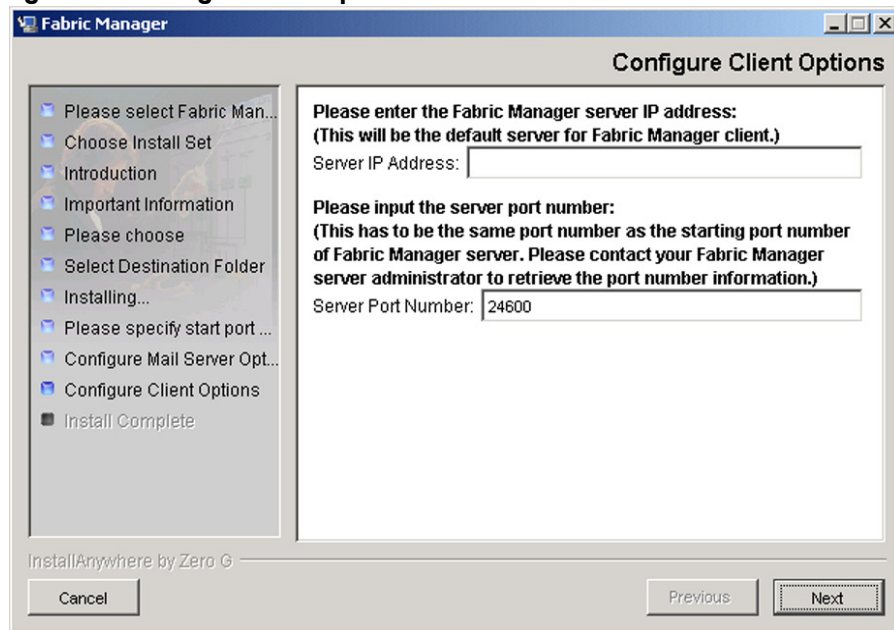
Installing the Fabric Manager client

To install the Fabric Manager client, execute the following procedure:

1. Windows: Double-click the `Windows` folder from the Fabric Manager Installation CD-ROM.
Solaris: Click `install.bin` from the File Manager window that displays when you insert the Fabric Manager Installation CD-ROM.
2. Double-click the **Install** icon. The `InstallAnywhere` dialog runs and then the **Fabric Manager** installation wizard displays (see [Figure 3](#) on page 34).
3. Select the version you would like to install (Evaluation or Full) and then click **Next**. The **Introduction** screen displays.

Note: A valid serial number and license key are required for a full installation. You cannot continue the full installation process without a valid serial number and license key.

4. Click the **Client** icon and then click **Next**. The Introduction screen displays.
5. Read the Introduction and then click **Next**. The **Important Information** screen displays.
6. Read the Important Information and then click **Next**. The **Select Destination Folder** screen displays.
7. Select a location to install the Fabric Manager Client. The default location is `C:\Program Files\Fabric Manager`.
8. Click **Choose** to browse to another location.
9. Click **Next**. The **Configure Client Options** screen displays (see [Figure 10](#)).

Figure 10: Configure client options screen

10. Enter a **Server IP Address** and a **Server Port Number**.

Note: The **Server IP Address** you enter is the default server for the Fabric Manager Client. The **Server Port Number** *must* be the same port number as the starting port number of the Fabric Manager Server.

11. Click **Next**. The **Install Complete** screen displays.

12. Click **Done**.

Note: For Solaris operating systems only: Log out of your workstation and log in again to access all Fabric Manager features.

Launching Fabric Manager for the first time

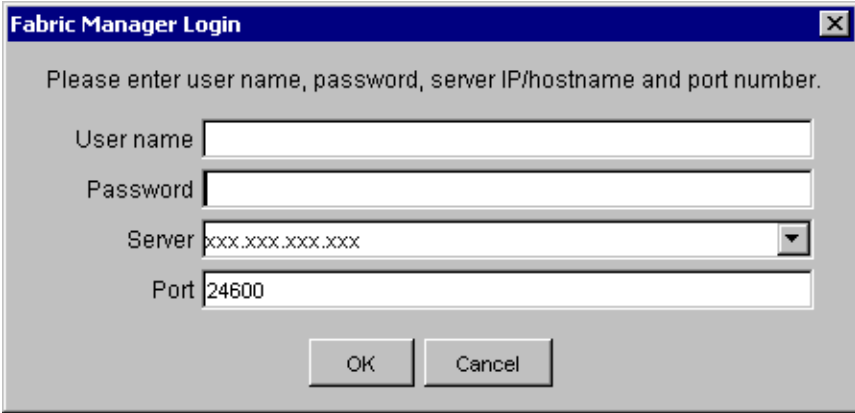
To launch Fabric Manager, execute the following procedure:

Windows: From the **Start** menu, select **Programs > Fabric Manager > Fabric Manager**.

Solaris: Navigate to the location where you installed Fabric Manager. Run the `runFabricManager` script.

The **Fabric Manager Login** dialog box displays. Fabric Manager automatically populates the **Server** and **Port** fields of the dialog box with the values that you specified when you installed the application. Figure 11 shows the **Fabric Manager Login** dialog box.

Figure 11: Fabric Manager login dialog box



13. In the **User name** field, enter the user name that you use to log in to the server.

Note: Fabric Manager stores your user name and automatically populates this field when you subsequently launch the software. *User names must be alphanumeric and can contain only the following special characters: underscore (_), dash (-), and periods (.).*

14. In the **Password** field, enter the password that you use to log in to the server and click **OK**. Fabric Manager launches.

Registering Fabric Manager

During a full installation, Fabric Manager is automatically registered on the workstation it is installed on. Registration changes the evaluation version into a full version. If you install the evaluation version of Fabric Manager, you need to register Fabric Manager within 60 days of installing it. After 60 days, the evaluation version will not be usable until it is registered.

To register Fabric Manager, execute the following procedure:

1. Select **Register** from the Help menu. The **Fabric Manager Registration** window displays.
2. Enter a valid serial number and license key.
3. Click **Enter**. A **Congratulations** dialog box displays, indicating that you have successfully registered Fabric Manager.
4. Click **OK** in the **Congratulations** dialog box.
5. Click **Cancel** to close the **Fabric Manager Registration** window.

Uninstalling Fabric Manager

This section explains how to uninstall Fabric Manager in both the Windows and Solaris environments.

Windows operating systems

1. From the **Start** menu, select **Programs > Fabric Manager > Uninstall Fabric Manager**.

Note: Do not use Windows Add Remove Programs to uninstall Fabric Manager; they do not completely remove the program.

2. Click **Next**.

3. Click the **Complete Uninstall** icon to remove both the Fabric Manager client and server from your machine, or click the **Uninstall Specific Features** icon and proceed as follows:
 - a. Click **Next**.
 - b. Uncheck features that you want to uninstall.
 - c. Click **Uninstall**.
4. Click **Done**.

Solaris operating systems

1. Navigate to the location where you installed Fabric Manager. From the **Fabric_Manager/UninstallerData** directory, run **Uninstall_FabricManager**.
2. Click **Next**.
3. Click the **Complete Uninstall** icon and then click **Next**.
4. Click **Done**.

Installing and reinstalling Fabric Manager

Customers must purchase a Fabric Manager version 3.0 to 4.x upgrade license to get Fabric Manager 4.x. To upgrade from version 3.0 to 4.x, you must purchase an upgrade kit (part number 345691-B22).

To upgrade from version 4.x to 4.1.x (same or newer version and Client-Server on the same system), you can just run install and overwrite the earlier version.

Changing user settings after installation

For Domain, edit

C:\FMServer\server\FabricManagerServer\conf\login-config.xml
and change the following to match the new domain name:

```
<application-policy name="WinNTLoginModule">
<authentication>
<login-module
code="com.your_company.procurator.mbeans.clientmanagement.WinNTLog
inModule"
flag="required">
<module-option name = "domain">your_company</module-option>
```

For Mail Server settings, edit

C:\FMServer\server\FabricManagerServer\deploy\mail-service.xml
and change the following three items:

```
<!-- Change to the mail server -->
<property name="mail.pop3host"
value="mail.your_company.com"/>

<!-- Change to the SMTP gateway server -->
<property name="mail.smtp.host"
value="mail.your_company.com"/>

<!-- Change to the address mail will be from -->
<property name="mail.from"
value="markpcl@your_company.com"/>
```

The Fabric Manager Service must be restarted for the changes to take effect.

Installation notes

- The supported operating systems are:
 - Server: Windows 2000 Server or Professional only
 - Client: Windows NT Pro or Server, Windows 2000 Pro or Server,
 - Solaris 7 or 8
- If the Setup-Install GUI never comes up during install, run the DOS command `dxdiag` and make sure that the graphics tests run without error. If any DirectX files are missing, or if any diagnostics fail, go to the Microsoft® website and upgrade to the latest version of DirectX.
- To find the domain name to use as the windows authentication domain that must be specified during installation, open a DOS Windows and type `set`. The alias `USERDOMAIN` indicates the active domain. If the client and server are to reside on different Microsoft domains, both domains *must* have trusts established between each other, or Fabric Manager will not be able to authenticate the client. Users should know which domain their systems are in, or check with their IT departments. Also note that this domain is *not* the *internet* domain (as in `corp.mycompany.com`); it is the domain name Microsoft uses for authentication.

- The client software polls the fabric information directly, so the client must be able to access each switch via an IP connection. Make sure the network environment does not have any proxy server or firewall between the client and the server and the switches. If one exists, ensure that proper rules are set up to allow access. In order to monitor switches for Call Home events, only the server needs IP connectivity to the switches.
- If you have problems installing on a Solaris system, you may be able to resolve it by making sure the recommended J2SE patches for Solaris Java applications are installed. These patches can be found at <http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/patch-access>.
Use the appropriate patch for your version of Solaris. Issues may also be encountered when using xwindows emulators from Windows to access the Sun host.
- Java is keyed to whatever version your browser or switch needs for WebTools. Java JRE, however, is now embedded into Fabric Manager install and may be separate than another version of Java already installed on the system. Use the following procedure to determine the Java version in use for Fabric Manager:
 1. Change directory to C:\Program Files\Fabric Manager\jre\bin
 2. Run the DO4S command `java-version` to determine the version of Java in use. Current version of JRE for Fabric Manager is 1.4.1_03.
- Before installing, check to make sure the system has the latest video drivers installed (to be safe, the user may wish to upgrade to the latest DirectX drivers as well). Certain systems may crash with a “Blue Screen” or the setup GUI may not start up—caused by an interaction between Java, Microsoft DirectX drivers, and the video driver. This crash and the GUI issues have been resolved by upgrading the drivers and DirectX to the latest versions. The following link takes you to the Sun page that mentions the issue (search on “blue screen”): <http://java.sun.com/j2se/1.4.1/relnotes.html>.

Fabric Manager Interface

3

This chapter discusses the following major topics:

- [Basic GUI](#) on page 52
- [Address field](#) on page 53
- [Standard Fabric Manager icons and panes](#) on page 53
- [ID field](#) on page 55
- [SAN elements tab](#) on page 55
- [Filter tab](#) on page 56

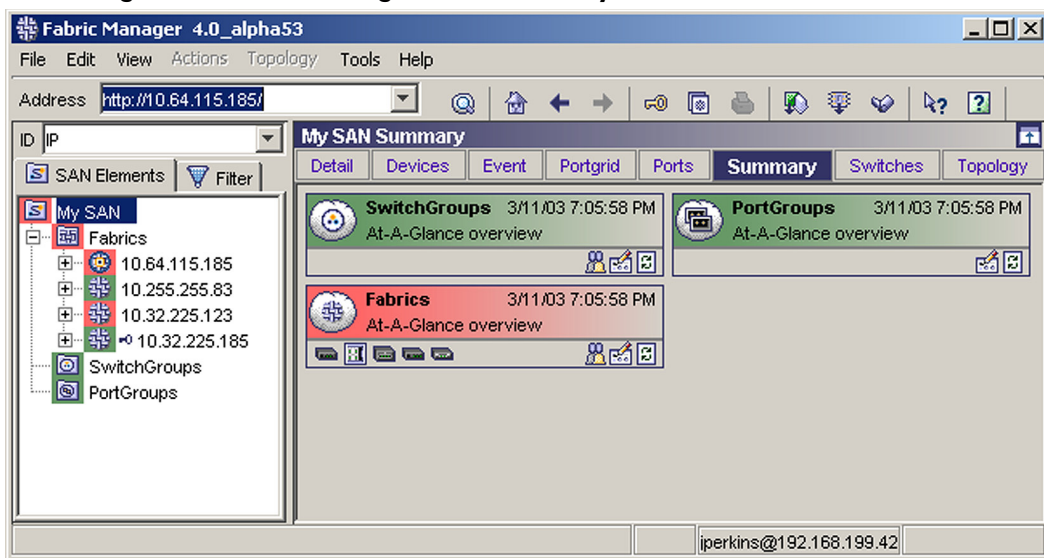
Introduction

The Fabric Manager graphical user interface (GUI) uses icons, menus, and right-click menus to assist you in administering your SANs. This chapter identifies many of the visual elements that you see when you open Fabric Manager. This chapter focuses on icons displayed in the Summary view. Specific chapters and appendices in this document address icons and menus displayed in other views. For more detailed information, see “[Summary view](#)” on page 243.

Basic GUI

The basic Fabric Manager GUI includes standard menus, tabs, and pull-down menus, as well as custom icons and windows. [Figure 12](#) shows the basic Fabric Manager interface.

Figure 12: Fabric Manager GUI in summary view



For information on the menus that display in the interface, see the appropriate appendix. This document explains each menu and all nested elements in separate appendices.

Address field

Use the **Address** field to discover a new fabric. The **Address** field keeps a pull-down menu list of the fabrics that you have discovered and lets you enter the IP address of new switches and fabrics that you want to monitor.

Standard Fabric Manager icons and panes

Standard icons occur in the Fabric Manager display. Different panes occur in the display when you use **Summary** view or **Detail** view. [Table 4](#) lists and describes standard Fabric Manager icons. Additional icons occur in certain views; you can find descriptions of those icons in the appropriate View Menu appendix.

Table 4: Standard icons













Icon	Description
Subnet scan icon 	Opens the Subnet scan dialog box to help you discover fabrics. For more information, see “Running a subnet scan” on page 58.
Home icon 	Returns to the view displayed when you opened Fabric Manager.
Previous icon 	Returns to the previous view in the navigation history (if applicable). If you press the Previous icon for more than half a second, a menu displays, showing the previous 10 views. You can select one of the views or select cancel .
Next icon 	Moves forward to the next view in the navigation history (if applicable). If you press the Next icon for more than half a second, a menu displays, showing the next 10 views. You can select one of the views or select cancel .
Fabric login icon 	Opens the Fabric login window so you can log in to one or more switches. For more information, see “Logging in to multiple switches simultaneously” on page 65.
Open FM Log icon 	Opens the Fabric Manager log for support purposes.

Table 4: Standard icons (Continued)

Icon	Description
Print View icon 	<p>Prints the contents of the view. You cannot access this option in all views. You can click this icon when you open any of the following views:</p> <ul style="list-style-type: none"> ■ Devices ■ Event ■ Portgrid ■ Ports ■ Switches ■ Topology <p>You cannot click this icon when you open any of the following views:</p> <ul style="list-style-type: none"> ■ Detail ■ Summary
Firmware download to HBAs icon 	Opens the Firmware download to HBAs window. For more information, see “Downloading firmware to an HBA” on page 185.
Firmware download to switches icon 	Opens the Firmware download to switches window. For more information, see “Performing a firmware download to multiple switches” on page 146.
Sequenced reboot icon 	Opens the Sequenced reboot window. For more information, see Chapter 18, “Sequenced Reboot.”
Context Help icon 	Changes your pointer to the help pointer. Click an element of the GUI for context-sensitive help.
Help icon 	Opens Fabric Manager Help .

Panes occur in **Summary** view and **Detail** view to display information about elements in the **SAN Elements** tab. [Figure 13](#) shows a pane in **Summary** view.

Figure 13: Sample Fabric Manager pane



Panes contain content and icons that you can use to monitor and configure your SAN. For more information, see [“Detail view”](#) on page 230 and [“Summary view”](#) on page 243.

ID field

The **ID** pull-down menu lets you customize how you view your switches and fabrics. For instructions on how to select identities with the **ID** field, see [“Selecting identity”](#) on page 66.

SAN elements tab

The **SAN Elements** tab displays the various elements that you monitor with Fabric Manager. As you use Fabric Manager, you repeatedly select items from the **SAN Elements** tab that you then configure and monitor.

When an element that Fabric Manager monitors changes status, the element changes color in the **SAN Elements** tab; the parent items in the **SAN Elements** tab tree change color to match.

Note: Port status does not affect the switch status color.

When an item in your **SAN Elements** tab changes color, the change does not necessarily represent the failure of an entire fabric or switch. Expand the navigation tree to identify the source of the status change.

Filter tab

The **Filter** tab lets you view elements that include a particular alphanumeric string. For instance, if you name all switches for your Accounting team acctX, where X is a number, you can view just your accounting switches if you select **name** from the pull-down menu, type acct in the text field, and click **Enter**. The **Filter** tab displays every switch that has **acct** in its name.

You can filter elements by the following attributes:

- IP
- Name
- Switch Type
- Version
- WWN
- Domain ID

Common Fabric Manager Tasks

4

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Introduction

This chapter explains how to perform common Fabric Manager tasks. More complicated or mission-critical tasks occur in separate chapters later in this document.

Discovering a fabric

You must *discover* a fabric to add it to the **SAN Elements** tab and administer it with Fabric Manager. To discover a fabric:

1. Place your cursor in the **Address** field and delete the contents of the field.
2. In the **Address** field, enter the IP address or switch name of a switch in the fabric that you want to administer and then press **Enter**.

Note: You do not need to include **http://** before the IP address to discover a fabric.

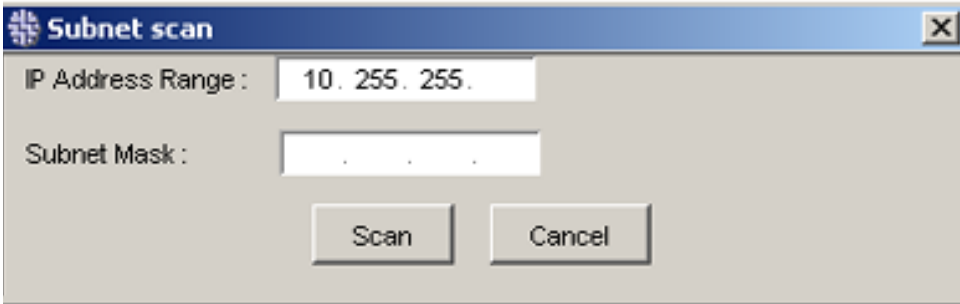
Running a subnet scan

Fabric Manager can scan a subnet to discover fabrics. With this discovery mechanism, you do not need to know the exact address of a switch to discover a fabric. When you specify a subnet, Fabric Manager lists the switches and fabrics that it finds so you can add them to the **SAN Elements** tab.

Note: Switches may occur in your subnet scan even after you unplug the ethernet cables of those switches.

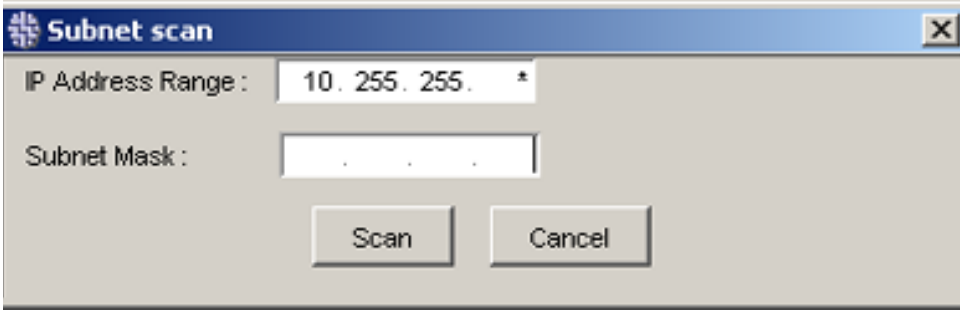
To run a subnet scan:

1. From the **Tools** menu, select **Subnet scan...** The **Subnet scan** dialog box opens.
2. Enter the first three sets of digits of an IP address in the first three sections of the **IP Address Range** field. See [Figure 14](#).

Figure 14: Subnet scan example 1A screenshot of a 'Subnet scan' dialog box. The title bar is blue with a network icon and the text 'Subnet scan'. The main area is light gray. It contains two text input fields: 'IP Address Range :' with the value '10. 255. 255.' and 'Subnet Mask :' with three dots. Below these fields are two buttons: 'Scan' and 'Cancel'.

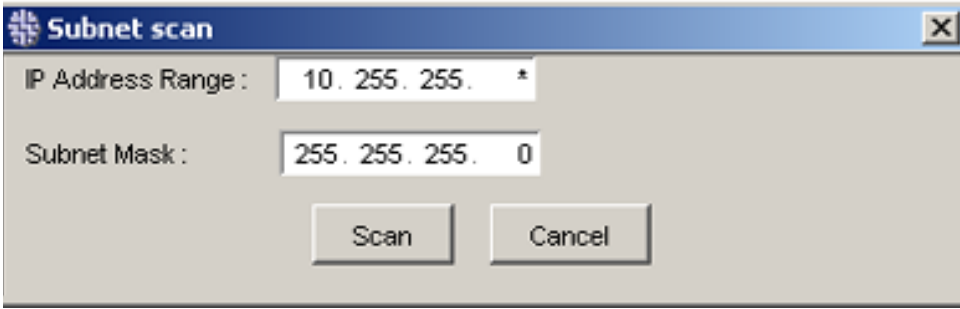
3. Enter a wildcard in the last section of the **IP Address Range** field to represent the range of scan (see [Figure 15](#)). Choose from one of the following three options:
 - **192.168.168.*** discovers any fabric in the address range of 192.168.168.0 - 192.168.168.255.
 - **192.168.168.1**** discovers any fabric in the address range of 192.168.168.100 - 192.168.168.199. (The first digit in the wildcard cannot exceed a value of two; see note.)
 - **192.168.168.11*** discovers any fabric in the address range of 192.168.168.110 - 192.168.168.119.

Note: The number before the * can be any number so long as the resulting range is between 0 and 255. For example, you cannot enter 192.168.168.3**, or 192.168.168.26*. If you enter 192.168.168.25*, the range is 192.168.168.250 - 192.168.168.255.

Figure 15: Subnet scan example 2

The image shows a 'Subnet scan' dialog box. The title bar is blue with a network icon and the text 'Subnet scan'. The main area has a light gray background. There are two input fields: 'IP Address Range : 10.255.255.*' and 'Subnet Mask : . . .'. Below these fields are two buttons: 'Scan' and 'Cancel'.

4. Enter a subnet mask to avoid scanning the IP address for the network or broadcasting (see [Figure 16](#)).

Figure 16: Subnet scan example 3

The image shows a 'Subnet scan' dialog box. The title bar is blue with a network icon and the text 'Subnet scan'. The main area has a light gray background. There are two input fields: 'IP Address Range : 10.255.255.*' and 'Subnet Mask : 255.255.255.0'. Below these fields are two buttons: 'Scan' and 'Cancel'.

5. Click **Scan**. The scan result opens. IP addresses displayed as underlined links with two angle brackets (>>) represent fabrics.
6. Click the link to view the switches in the fabric.

Note: To add a switch or fabric to your **SAN Elements** tab, click the checkbox next to the element and then click **Add**.

Deleting a fabric

To no longer monitor a fabric with Fabric Manager, execute the following procedure:

1. In the **SAN Elements** tab, click the fabric that you want to remove from Fabric Manager.
2. Press the **Delete** key to remove the fabric. Fabric Manager prompts you to make sure that you want to delete the fabric.

You can also select **Delete** from the **Actions** menu to remove the selected fabric from Fabric Manager.

Note: Switches and ports from this fabric, that you added to logical switch groups and port groups, are still displayed in the groups.

Manually refreshing a fabric

All **At-A-Glance** views are updated at 20-second intervals; everything else in the GUI is updated whenever there is a change in current data. If you notice a discrepancy between the data displayed in Fabric Manager and the fabric itself, perform a manual refresh or “re-discover” the fabric to update the GUI.

To refresh a fabric:

1. In the **SAN Elements** tab, click the fabric that you want to refresh.
2. From the **Actions** menu, select **Refresh**.

Note: This action disables ISL Checking and Fabric Checking on your fabric. You must re-enable the features once the refresh is complete.

Renaming a fabric

When you discover a fabric, Fabric Manager assigns a name to that fabric that matches the name of the switch that you used to discover the fabric. For instance, to monitor a fabric that includes Switch_01, enter the IP address of Switch_01 in the **Address** field to discover the fabric. Fabric Manager then names that fabric Switch_01 and displays that name in the **SAN Elements** tab.

After you discover the fabric, you can assign a name to the fabric that serves a more useful purpose for you (for instance, “mktng_SAN” or “HQ”). To rename a fabric:

1. In the **SAN Elements** tab, click the fabric that you want to rename.
2. From the **Edit** menu, select **Rename**. A cursor is displayed to the right of the current name.

Note: You can also use the **F2** key or triple-click a fabric, switch, or port icon to rename it.

3. Rename the fabric and then press **Enter**.

Renaming a switch

To rename a switch:

1. In the **SAN Elements** tab, click the switch that you want to rename.
2. From the **Edit** menu, select **Rename**. A cursor is displayed next to the name of the switch in the **SAN Elements** tab.
3. Edit the name of the switch and press **Enter**.

Note: You can also use the **F2** key or triple-click a fabric, switch, or port icon to rename it.

Renaming a port

When you rename a port on a switch that runs firmware other than 3.1.0 and 4.1.0, the port name applies only to your local Fabric Manager view. If you rename a port on a switch that runs firmware version 3.1.0 or 4.1.0, Fabric Manager propagates that name to the port and changes the port name on the switch, provided the Fabric Login information has been set up successfully. To rename a port:

1. In the **SAN Elements** tab, click the port that you want to rename.
2. From the **Edit** menu, select **Rename**. A cursor is displayed next to the name of the switch in the **SAN Elements** tab.
3. Edit the name of the port and press **Enter**.

Note: You can also use the **F2** key or triple-click a fabric, switch, or port icon to rename it.

Viewing SAN information

To view information about a particular element of your SAN, click the element immediately above it in the hierarchy. When you click the *parent* element, information about the *child* element that you want to view is displayed in the right view window.

When you click an element in the **SAN Elements** tab, Fabric Manager displays information about all immediately-subordinate elements in the hierarchy. For instance, if you click **My SAN** in **Summary** view, Fabric Manager displays summaries for Fabrics, SwitchGroups, and PortGroups. If you click a particular fabric in the hierarchy, Fabric Manager displays information on each switch in the fabric. If you click a particular group, Fabric Manager displays information on each member of the group.

Each view in the **View** menu displays different informational content, and you can customize which content to display. (For more information on how to customize views, see “[Customizing a view](#)” on page 64.)

[Table 5](#) provides a high-level description of what each view displays. For more detailed information on each view, see Appendix C, “[View Menu Reference](#),” on page 229.

Table 5: Fabric Manager SAN information views

View	Description
Detail	Provides information about the components and status of an element.
Devices	Provides information about all devices that connect to an element.
Event	Provides an event log for the element and the status reason.
Portgrid	Shows the node that connects to each port. Note: The Portgrid View displays devices only; it does not show ISL information.
Ports	Provides information about the status and traits of each port.
Summary	Provides a summarized version of Detail view. Note: Summary view provides the same view options as Detail view. Customize Summary view to display content that you frequently reference. Customize Detail view to provide a more thorough report. For more information, see “Customizing a view” on page 64.
Switches	Provides information about the status and traits of each switch.
Topology	Provides a graphical display of topology.

Customizing a view

Customize a view so that each time you select that view, it displays only the information that you want to see. To customize a view, follow these steps:

1. Click an element in the **SAN Elements** tab.
2. From the **View** menu, select the view that you want to customize.
3. From the **Edit** menu, select **View Options...** The **Edit View Options** window opens.

4. Click an item and then click the appropriate directional arrow to add items to the display or remove items from the display. You can use the **Ctrl** and **Shift** keys to select multiple items at once. In the view display columns, designate the order of the columns as follows:
 - a. Click an item in the **Display Items** field.
 - b. Click an up or down directional arrow to change the order of the column in the display.
5. Click **OK**.

Changing pane descriptions

When you change a pane description, you change the text displayed immediately below the name of the pane. To change a description:

1. In the **SAN Elements** tab, click the element that you want to change.
2. From the **Edit** menu, select **Change Description**. The **Please enter the new description** dialog box opens.
3. In the **New Description** field, enter a description for the pane and click **OK**. To view the description, click the parent element in the **SAN Elements** tab. The new description is displayed on the appropriate pane.

Logging in to multiple switches simultaneously


You can use Fabric Manager to log in to multiple switches at the same time. With multiple log ins, you do not need to log in to each switch individually to administer your fabric. After you log in to a switch, Fabric Manager stores your login information and automatically logs you in to the switches. You must log in to a switch to perform the following Fabric Manager tasks:

- Firmware download to HBAs and switches
- License key installation
- Fabric compare and merge
- Date and time synchronization
- Baseline configuration upload and download
- Sequenced reboot
- Security policy configuration
- Fabric backup
- Diff with backup

To log in to multiple switches, follow these steps:

1. From the **File** menu, select **Fabric Login...**
2. Select switches or fabrics from the **SAN Elements** tab and click the right arrow to move them to the **Selected Switches** window.

Note: Click and drag fabrics or switches to quickly move switches into the **Selected Switches** window.

3. In the **User Id** field, enter your user ID.
4. In the **Password** field, enter your password.
5. Click **Apply**. The success or failure of the login is displayed in the **Status** column of the **Selected Switches** window. A key icon  is displayed next to each switch and fabric that completes a successful login.

Note: If you did not login to all of the switches successfully, remove the successful switches from the **Selected Switches** window and retry with a new user ID and password.

Selecting identity

Fabric Manager lets you view SAN elements by the identifier that you find most useful. Because you can identify most SAN elements in multiple ways (for instance, you can identify a switch by IP address, domain ID, WWN, and name), Fabric Manager lets you choose the identifier that you want. When you select identity, you choose the type of identifier that Fabric Manager displays for each element.

To select identity:

From the **ID** pull-down menu, select the type of identifier that you want to use to label the elements in your display.

Navigating Fabric Manager

Click elements, menus, views, and navigation buttons to navigate Fabric Manager. As you move from view to view and element to element, Fabric Manager tracks your views so you can use the navigation buttons to move back and forth between the selections that you made from the View menu and view selector. The sections that follow describe the navigation tools that Fabric Manager provides.

Navigating with elements and views

To navigate Fabric Manager, you must select different elements and different views. Fabric Manager provides the following two methods to access different views:


1. From the **View** menu, select the view that you want to access.
2. Use the view selector:
 - a. Click the **Display view selector** icon  in the top right corner of the interface. The view selector displays (see [Figure 17](#)).

Figure 17: View selector



- b. In the view selector, click the view that you want to access.

Note: The icon that displays the view selector serves other functions when it occurs in other locations. Only the icon in the top right corner of the interface displays the view selector.




[Table 6](#) provides a list of views and explains the information that each view contains. For more detailed information about each view, see Appendix C, “[View Menu Reference](#),” on page 229.

Table 6: Fabric Manager element views

View	Description
Detail	Provides information about the components and status of an element.
Devices	Provides information about all devices that connect to an element.
Event	Provides an event log for the element and the status reason.
Portgrid	Shows the node that connects to each port. Note: The Portgrid View displays devices only; it does not show ISL information.
Ports	Provides information about the status and traits of each port.
Summary	Provides a summarized version of Detail view. Note: Summary view provides the same view options as Detail view. Customize Summary view to display content that you regularly reference. Customize Detail view to provide a more thorough report. For more information, see “Customizing a view” on page 64.
Switches	Provides information about the status and traits of each switch.
Topology	Provides a graphical display of topology.

Navigating with navigation buttons and history

Fabric Manager maintains a history of the views that you visit. Use the navigation buttons to move forward and backward through views that you have already accessed. Use navigation buttons as follows:

- Click the **Back** icon  to return to the previous view.
- Click and hold the **Back** icon to display a list of the views that you have visited, drag the cursor to the view you want to see, and then release the mouse button.
- Click the **Forward** icon  to move forward to the next view in your view history.
- Click and hold the **Forward** icon to display a list of the views that you have visited, drag the cursor to the view you want to see, and then release the mouse button.
- Click the **Home** icon  to display the view that occurred when you launched Fabric Manager.

Customizing tables

With Fabric Manager you can change the order and size of columns that occur in views such as **Portgrid** and **Switches**. With customizable tables, you can do the following:

- Click and drag table headers to change the order in which columns occur in the table.
- Click and drag the border between column headers to resize columns.
- Click column headers to organize information in ascending or descending order by that column.

Note: The **Status** column in **Portgrid** view and **Switches** view sorts contents by severity when you click the column header.

Copying tables to spreadsheet applications

Fabric Manager tables migrate quickly and easily to spreadsheet applications. To copy a table to a spreadsheet application:

1. Navigate to a view that displays a table.
2. From the **Edit** menu, select **Copy Table**.
3. Open a spreadsheet application.
4. From the **Edit** menu, select **Paste**.

Enabling and disabling elements

You can use Fabric Manager to quickly disable or enable large numbers of switches or ports across multiple switches or fabrics. To enable or disable elements:

1. Verify that you have logged in to all necessary switches. You cannot enable or disable a port or switch until you log in to that switch. For more information on how to log in, see [“Logging in to multiple switches simultaneously”](#) on page 65.
2. From the **SAN Elements** tab, select the switches, ports, or groups that you want to disable.
3. From the **Actions** menu, select **Disable and Enable...** and then click the appropriate option.

Note: The switch enable and disable menu item enabling and disabling is based on switch status; that is, when the switch is disabled, only the switch enable menu item is enabled; the switch disable menu item is greyed out, and *vice versa*. For telnet, switch enable and disable commands can be executed regardless of switch status.

Configuring log parameters

Configure log parameters to set the file log path and priority levels for Fabric Manager log information. When you configure the level of each log, you designate what errors Fabric Manager saves to the file log and what errors are displayed when you open the Fabric Manager log. Changes made to logging paths and log levels are dynamic and do not require an application restart to take effect.



Caution: Do not change log parameters unless support personnel instruct you to do so.

To configure log parameters, execute the following procedure:

1. From the **File** menu, select **Options...** The **Options** window opens.
2. From the **Configurations** navigation tree, click **Log Parameters**.
3. In the **Log Directory Path** field, enter a directory or click **Browse** to select a directory in which to store the log directory.

4. From the **FabricManager Log Level** pull-down menu, select a severity level. Fabric Manager logs all events of that severity level and lower.
5. From the **File Log Level** pull-down menu, select a severity level. Fabric Manager logs all events of that severity level and lower.
6. Click **OK**.

Printing

Fabric Manager can print the following views:

- Devices
- Event
- Portgrid
- Ports
- Switches
- Topology

To print a view:

1. From the **View** menu, select a view that Fabric Manager can print.
2. From the **File** menu, select **Print...** The **Print** dialog box opens.
3. Select a printer and then click **OK**.

Printing in one page

To print a view in one page:

Note: The option to print in one page applies exclusively to Topology view.

1. From the **View** menu, select a view that Fabric Manager can print.
2. From the **File** menu, select **Print In One Page...** The **Print** dialog box opens.
3. Select a printer and then click **OK**.

Downloading a configuration

With Fabric Manager, you have the opportunity to download a configuration from a saved baseline file or from a switch. During the download process, you can selectively choose the settings you want to download and the settings you want to omit. For instructions on saving a baseline configuration to a file, see [“Saving a baseline configuration to a file”](#) on page 165.

Downloading to switches from a baseline file

To download a baseline file to one or more switches:

1. From the **Tools** menu, select **Config > Compare/Download from File**. The **Compare/Download from File -- Select Baseline Configuration** dialog box opens.
2. Navigate to the baseline file and click **Open**. The **Compare/Download from File -- Target Switch Selection** window opens.
3. From the **SAN Elements** tab, select switches you want to compare, move them to the right window, and click **OK**. You can:
 - Navigate to a switch, click the switch, and then click the right-pointing arrow.
 - Click and drag a switch from the **SAN Elements** tab to the right window.
 - Press and hold **Ctrl**, click multiple switches in the **SAN Elements** tab, and then click the right-pointing arrow.
 - Press and hold **Ctrl**, click multiple switches, and then click and drag the switches from the **SAN Elements** tab to the right window.
 - Click and drag a fabric to the right window to move add all of the switches in that fabric to the window.

The **Compare/Download from File -- Switch Configuration comparison and Download** window opens.

4. Click **Apply Baseline...**

Note: The delay timer at the bottom of the **Apply Baseline...** dialog box cannot be configured from this dialog box. It is propagated from current settings in the sequenced reboot group and represented by the combination of “Fabric Stabilization timeout” and “Delay after Fabric Stabilization” parameters.

Note: Prompts are displayed to ensure that you do not accidentally download a configuration.

The **Apply Baseline** window opens. The **root** navigation tree divides the switches into the following two groups:

- **Non-Reboot Config Group:** these switches are Linux-based and do not need to reboot after a config download.
 - **Reboot Config Group:** these switches are VXWorks-based and must reboot after a config download.
5. Click **Apply**. Fabric Manager prompts you to be sure that you want to proceed. The download proceeds one group at a time. The status of the switches is displayed in the right window.

Downloading to switches from a baseline switch

To download a configuration from a baseline switch to one or more switches, execute the following procedure:

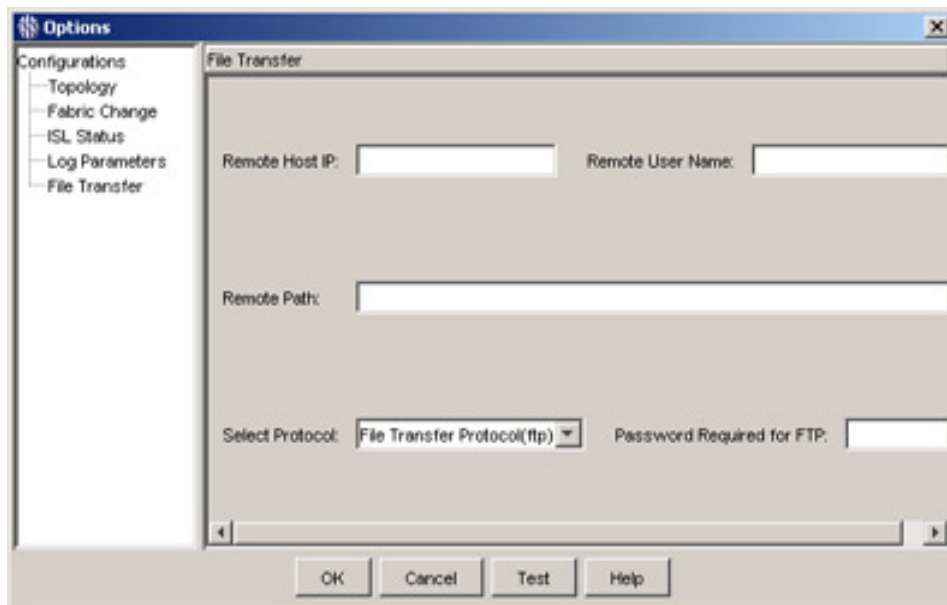
1. From the **Tools** menu, select **Config > Compare/Download from Switch**. The **Compare/Download from Switch -- Source Configuration Selection** window opens.
2. Navigate to the switch that you want to use as a baseline and click the right-pointing arrow to move that switch to the right window.
3. Click **OK**. The **Compare/Download from Switch -- Target Switch Selection** window opens.
4. From the **SAN Elements** tab, select switches you want to compare and move them to the right window. You can:
 - Navigate to a switch, click the switch, and then click the right-pointing arrow.
 - Click and drag a switch from the **SAN Elements** tab to the right window.
 - Press and hold **Ctrl**, click multiple switches in the **SAN Elements** tab, and then click the right-pointing arrow.
 - Press and hold **Ctrl**, click multiple switches, and then click and drag the switches from the **SAN Elements** tab to the right window.
 - Click and drag a fabric to the right window to move all of the switches in that fabric to the window.
5. Click **Apply Baseline...**

Configuring file transfer options

To configure file transfer options:

1. From the **File** menu, select **Options...** The **Options** window opens (see [Figure 18](#)).

Figure 18: Options window



2. The default view in the **Options** window is the **File Transfer** view. If the **File Transfer** view is not displayed, select **File Transfer** from the **Configurations** navigation tree. The **Configurations** navigation tree is displayed (see [Figure 19](#)).

Figure 19: Options window configurations tree

3. In the **Remote Host IP** field, enter the IP address of your FTP server.
4. In the **Remote User Name** field, enter your login name.
5. In the **Remote Directory Path** field, enter a default FTP directory.

Note: Do not enter a file name, only a directory.

6. From the **Select Protocol** pull-down menu, select **File Transfer Protocol (ftp)**.
7. In the **Password Required for FTP** field, enter your password and then click **OK**.
8. Click **Test** to ensure that you can access the FTP server specified. Fabric Manager reports success or failure. The test must be successful in order for certain features to work (for example, config download and merge check).

Note: In addition to validating connectivity to the FTP server, the **Test** button writes a temporary file to the specified FTP directory. For the test to complete successfully:

- write permissions must be set up properly on the specified directory of the FTP server
- ports 20 and 21 must be open between the Fabric Manager client, the FTP Server, and the switch.

9. Click **OK** to save settings.

Synchronizing time and date across a fabric

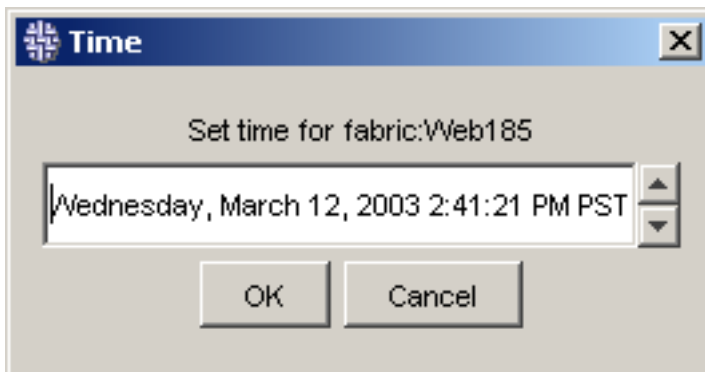
You can synchronize time and date across an entire fabric. Because the firmware timestamps entries in the port log dump, you can more easily correlate events when you synchronize your fabric.

Note: To synchronize time and date, you must choose fabrics, not switch groups.

To synchronize time and date:

1. Log in to the switches in the fabric that you want to synchronize. For more information, see [“Logging in to multiple switches simultaneously”](#) on page 65.
2. In the **SAN Elements** tab, click the fabric that you want to synchronize.
3. From the **Action** menu, select **Set Time...** The **Time** dialog box opens (see [Figure 20](#)).

Figure 20: Time dialog box



4. To adjust the time or date, click the appropriate field in the **Time** dialog box and use the up and down arrows to set the value and then click **OK**.

Filter elements

The **Filter** tab consists of the following three components:

- A text field
- A pull-down menu
- A **SAN Elements** field

To use the **Filter** tab:

1. From the pull-down menu, select an identifier. For more information, see [Filter tab](#) on page 56.
2. In the text field, type text (letters, numbers, and symbols, such as a period) to be displayed in the elements that you want to view. For instance, to view elements that all include **switch** in the name, select **Name** from the pull-down menu and enter **switch** in the text field. To view elements that include **10.32** in the IP address, select **IP** from the pull-down menu and enter **10.32** in the text field.
3. Press **Enter**. Every element that includes the text that you entered is displayed in the **SAN Elements** field.

Designating a switch as a core switch

Note: This procedure applies only to Core Edge topologies.

All switches defined in the FCS policy of a secure fabric are considered core switches. Any switches with devices attached to them are automatically considered edge switches. For more information, see “[Topology view](#)” on page 251. If you want to manually assign a core switch, execute the following procedure:

1. From the **SAN Elements** tab, click the switch that you want to designate.
2. From the **Actions** menu, select **Core Switch**. When you view the fabric to which that switch belongs in **Topology** view and select the core-edge layout, your switch is then displayed as a core switch.

User Logins and Persistence

5

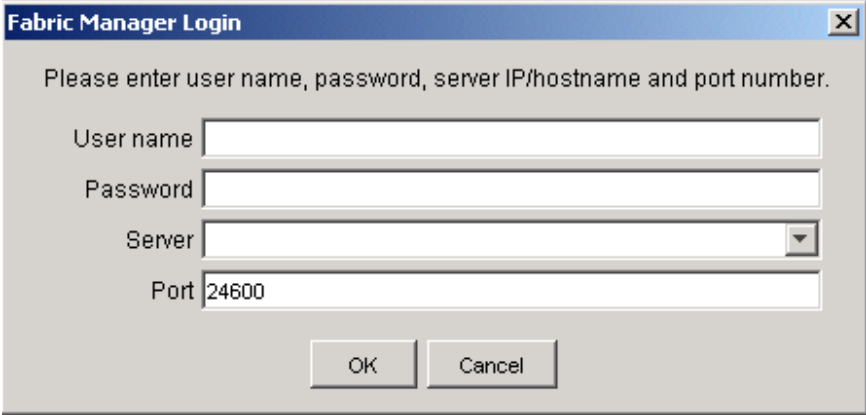
This chapter discusses the following major topics:

- [Persistent data](#) on page 81
- [Persistence files](#) on page 81

Introduction

Fabric Manager requires that the user log in to use the software and it stores user-specific settings for each user. [Figure 21](#) shows the login dialog box.

Figure 21: Fabric Manager login dialog box



Fabric Manager stores user settings when you exit, not while you run the software. Some persistent settings reside on the server; others reside on the client. If the client cannot access the server at exit, Fabric Manager alerts you that your settings will not persist.

When the client attempts to log in to the server, the server authenticates the client login. After the server authenticates the client, Fabric Manager launches and polls switches.

Login scenarios

After you log in to Fabric Manager, connection problems may arise that can potentially interfere with the client. The following two scenarios occur most commonly:

1. While your client runs, your password changes on the server. When you try to close the client and store your settings, the client prompts you to enter your password. You must enter the new password to persist your data and close the client.

2. While your client runs, the server goes down. When you try to close the client, the client alerts you that you cannot persist your settings. The client gives you the option to close and lose your settings or wait until the server comes back up. When the server comes back up, you can exit and your settings persist.

Persistent data

Fabric Manager stores the following user settings locally.

- User name
- Host name and server IP address of all servers you have successfully accessed
- Port numbers
- Browser path to launch Web Tools
- Dimensions of the Fabric Manager window
- Fabric Manager log directory path

Fabric Manager stores the following user settings remotely:

- Group definitions
- Discovered fabrics
- UI settings (view customizations, topology locations, and so forth)
- switch user names and passwords

Persistence files

Prior to Fabric Manager 4.x, two files stored user information locally. [Table 7](#) lists and describes those files.

Table 7: Original Fabric Manager persistence files

File	Contents
FabricManager.properties	Stores UI settings and configurable parameters.
FabricManager.xml	Stores discovered fabrics and group definitions.

To adapt to the client-server architecture of Fabric Manager 4.x (and later), some of the content of the `FabricManager.properties` file now occurs in a `FabricManagerUser.properties` file that resides on the server. [Table 8](#) lists and describes the files that store user settings.

Table 8: Current Fabric Manager persistence files

File	Location	Contents
<code>FabricManager.properties</code>	client	Stores Fabric Manager host name/IP addresses and ports, user name, browser path, Fabric manager window dimensions, and x, y coordinates.
<code>FabricManager.xml</code>	server	Stores discovered fabrics and group definitions.
<code>LocationTable</code>	server	Stores X and Y locations for topology nodes in Topology view.
<code>FabricManagerUser.properties</code>	server	Stores User Interface settings such as known fabrics, file transfer settings, and default layout and link styles for the Topology view.
<code>SwitchInfo.txt</code>	server	Stores login information with passwords encrypted.

Grouping



This chapter discusses the following major topics:

- [Creating a group](#) on page 85
- [Deleting a group](#) on page 88
- [Exporting groups](#) on page 88
- [Importing groups](#) on page 89

Introduction

Logical *groups* consist of SAN elements (either switches or ports) that you select to monitor as a unit. When you click a group in the **SAN Elements** tab and select **Summary** view, you immediately see the status of the switches or ports that you added to the group. You can use groups to:

- Simplify monitoring
- Simplify management
- Organize switches by function, switch type, firmware version, or any other criteria that you choose
- Create functional hierarchies of groups

You can create groups of similar switches and ports so you can monitor and configure them as a unit instead of individually. For instance, if you create a group of switches that run the same firmware, you can download new firmware to those switches as a group, rather than one at a time. Whenever you need to perform the same task on multiple switches, you can save time if you create a group and perform that task on the group. Examples of such tasks include:

- Multiple switch login
- Simultaneous firmware downloads
- Fabric-wide license key activations

Note: A switch can be displayed in multiple groups at the same time.

Groups persist on your server in your `FabricManager.xml` file. You can import and export groups so that multiple users can share group definitions.

Note: Switches remain in a group even if you remove their source fabrics from Fabric Manager. That is, if switch X is in fabric Y and you add it to group Z, switch X remains in group Z even after you delete fabric Y from Fabric Manager. Furthermore, when you look at a logical switch group in the Topology view, links are no longer displayed if the switches in this group are no longer in the **SAN Elements** tab in Fabric Manager.

When to create groups

The following list describes valuable ways to use Fabric Manager groups:

- Create groups of switch model types or firmware versions to expedite firmware downloads.
- Group switches by function to monitor switches that belong to different departments or that serve as a backbone to the SAN.
- Group switches by physical location to monitor fabrics in disparate locations.
- Group switches by SAN island to monitor or update individual islands
- Group switches by redundancy so you can maintain half of a fabric while the other half continues to carry traffic.
- Nest fabrics to drill down to the source of a problem. For instance, if you create a switch group for a campus, then nest within that switch groups for departments, you can move down the hierarchy to determine the source of any status change.
- Create separate groups for monitoring and management to reduce unnecessary levels of nesting.
- Group ports by certain devices and hosts to more easily monitor those elements.
- Use groups to simplify the monitoring view of a large or complex fabric.

Note: When you remove a switch from a fabric, you must remove that switch from all group definitions because Fabric Manager does not do so dynamically. For the same reason, if you replace the switch with a new switch, you must add that switch to all applicable group definitions.

Creating a group

With Fabric Manager, you can create a group of switches or a group of ports. Group switches together that serve similar purposes (for instance, all core switches or all switches that run the same firmware) and group ports together that serve similar purposes (for instance, all E_Ports).

Creating switch groups

A switch group consists of a collection of switch identifiers. After you create a group, you can click and drag that group during tasks to work with all switches at once. For instance, if you want to log in to all of the switches in a group, you can drag the group into the appropriate window so you do not need to select each individual switch. To create a group of switches:

1. From the **File** menu, select **Groups > Edit Switch Groups...** The **Edit Switch Groups** dialog box opens.
2. Click the **SwitchGroups** icon in the right window.

Note: The group that you create displays as nested within the item that you click in this step. If you click an existing group instead of the **SwitchGroups** icon, your new group displays as a subgroup of that group. After you create a group, you can click and drag it to a new location in the hierarchy.

3. Click **Create...** The **Create Group** dialog box opens.
4. Type a name for your group in the **Name** field and then click **Okay**.
5. Click the icon of the group that you created.
6. In the left window, click the switch that you want to add to your group and then click the right-pointing arrow to add the switch to the group.

Note: To add multiple switches at once, press and hold the **Ctrl** key as you click additional switches or simply click and drag any node in the tree to add the switches from that node.

Note: Click and drag switches directly from the left window to the switch group to more quickly populate the group.

7. Click **OK** after you add switches to your group. The group is shown in the **SAN Elements** tab under **SwitchGroups**. To view the contents of the group, click the group.

Creating port groups

A port group essentially consists of a collection of port identifiers. After you create a group, you can click and drag that group during tasks to work with all ports at once. Perform the following steps to create a group of ports:

1. From the **File** menu, select **Groups > Edit Port Groups...** The **Edit Port Groups** dialog box opens.
2. Click the **PortGroups** icon in the right window.

Note: The group that you create displays as nested within the item that you click in this step. If you click an existing group instead of the **PortGroups** icon, your new group displays as a subgroup of that group. After you create a group, you can click and drag it to a new location in the hierarchy.

3. Click **Create...** The **Create Group** dialog box opens.
4. Type a name for your group in the **Name** field and then click **Okay**.
5. Click the icon of the group that you created.
6. In the left window, click the port that you want to add to your group and then click the right-pointing arrow to add the port to the group.

Note: To add multiple ports at once, press and hold the **Ctrl** key as you click additional ports.

Note: Click and drag ports directly from the left window to the port group to more quickly populate the group.

7. Click **OK** when you have finished adding ports to your group. The group displays in the **SAN Elements** tab under **PortGroups**. To view the contents of the group, click the group.

Deleting a group

1. From the **File** menu, select **Groups > Edit {Switch | Port} Groups...** The **Edit {Switch | Port} Groups** dialog box opens.
2. In the right window, navigate to the group that you want to delete and click that group.
3. Click **Delete** and then click **OK**.

Note: You can also select the group you want to delete from the **SAN Elements** tab and press **Delete** on your keyboard to delete a group.

Exporting groups

When you create a group, that group exists in your `FabricManager.xml` file. To share your group definitions with other users, export the group so another user can import the group.

To export a group:

1. From the **File** menu, select **Groups > Export...** The **Export** dialog box opens.
2. Click **Browse...**, navigate to the file to which you want to export the group, and then click **Open**.
3. Under the **SAN Elements** tab in the left window, click the group or groups that you want to add to the file.

Note: You must select the parent group in order to import the parent group and all of its subgroups at a later time.

4. Click the arrow to add the groups to the file and then click **Save**.

Importing groups

Import groups to add group definitions from other users to your personal profile so you do not need to re-create the groups yourself. To import a group:

1. From the **File** menu, select **Groups > Import...** The **Import from file:** dialog box opens.
2. Navigate to the file that contains the group that you want to import.
3. Click the file and then click **Open**. The groups in the file are displayed in the **SAN Elements** tab under the appropriate groups type.

Licensing



This chapter discusses the following major topics:

- [Importing and exporting license keys](#) on page 92
- [Removing a license key from a switch](#) on page 93
- [Obtaining licenses from transaction keys](#) on page 93

Introduction

Fabric Manager can display, store, load, and reload your license keys so that you do not lose them if your switch fails.

Note: A Web Tools license must be installed on a switch in order for Fabric Manager to be able to recognize the switch. All other licenses can be installed using Fabric Manager.

Importing and exporting license keys

Export license keys from healthy switches to a file so you can restore the licenses if switches fail. If you ever need to recover your license keys, import those keys from the file you created.

Exporting license keys from switches to a file

You can export the license keys of multiple switches to a single file. You can even export keys from different switches in different fabrics to one file. The file matches the license keys to the WWN of the appropriate switch so you can quickly and easily import the keys at any time. To export license keys to a file, execute the following procedure:

1. From the **Tools** menu, select **Licensing > Load from Switch...** The **License Admin -- Switch Selection** window opens.
2. In the **SAN Elements** tab, click the switches and fabrics with license keys that you want to export.
3. Click the right-pointing arrow to move elements that you selected into the right window and then click **OK**. The **License Administration** window opens. If you have not already logged in to the switches, Fabric Manager prompts you to do so.
4. Click the **Switch** tab and then click **Export to File**. The **Export Licenses as an XML file** dialog box opens.
5. Select a directory, enter a name for the file, and then click **Export**.

Note: Do not open or manually edit this file.

Importing license keys from a file to a switch

If you need to restore license keys to a switch, import the keys that you saved to a file. To import license keys from a file, execute the following procedure:

1. From the **Tools** menu, select **Licensing > Import from File...** The **Import License -- Select license file** window opens.
2. Navigate to your license key file, select it, and then click **Open**. The **License Administration** window opens.
3. Click the licenses that you want to download and then click **Download to Switch**. Fabric Manager loads the licenses to the appropriate switches. If you have not already logged in to the switches, Fabric Manager prompts you to do so.

Removing a license key from a switch

To remove a license key and disable the functionality of a licensed feature, execute the following:

1. From the **Tools** menu, select **Licensing > Load from Switch...** The **License Admin -- Switch Selection** window opens.
2. In the **SAN Elements** tab, click the switches and fabrics with license keys that you want to remove.
3. Click the right-pointing arrow to move elements that you selected into the right window and then click **OK**. The **License Administration** window opens.
4. Click the **Switch** tab, select the licenses that you want to remove, and then click **Remove from Switch**.

Obtaining licenses from transaction keys

To obtain licenses from transaction keys:

1. Request a transaction key file from your switch supplier.
2. Download the transaction key file from your email to your client machine.
3. Log in to the switches for which you want to obtain a license. For more information, see [“Logging in to multiple switches simultaneously”](#) on page 65.

4. From the **Tools** menu, select **Licensing > Generate Licenses...** The **Create License Request -- Select transaction key file or saved request** dialog box opens.
5. Open the transaction key file. The **License Request Administration** window opens and displays all of the features available to you from the transaction key files that you opened.
6. Select one or more of the features in the **Feature Name** column.
7. Click **Select Switches**.
8. Choose switches from the **SAN Elements** tab for which you want to obtain licenses and then click **OK**. If you have not already logged in to the switches, Fabric Manager prompts you to do so.
9. Click **Save Request** to save the License Request file in XML format and submit at a later time.
 - a. Click **Load TXN Key** to select another transaction key file or a saved License Request file.
 - b. Click **Submit** to submit the request. If you entered your email address in the request, you receive a record of licenses by email.
 - c. Click **Reset** to remove any switches that you have entered in the Switches column and to reset the Available Quantity.The License Administration window opens.
10. Click the **Obtained Licenses** tab. All the licenses that you obtained are displayed.
11. Select one or more licenses and then click **Download to Switch** to download the licenses to your switches.

Note: To obtain the Security license, you must accept a license agreement.

Zoning

8

This chapter discusses the following major topics:

- [Accessing the zone administration window](#) on page 98
- [Viewing the zone configuration summary](#) on page 99
- [Adding a WWN to the Zoning database](#) on page 100
- [Searching for a zone member](#) on page 101
- [Selecting a Zoning method](#) on page 101
- [Refreshing Zoning](#) on page 101
- [Refreshing the fabric](#) on page 102
- [Enabling a configuration](#) on page 102
- [Disabling Zoning](#) on page 103
- [Saving changes to an existing configuration](#) on page 104
- [Clearing the Zoning database](#) on page 104
- [Creating an alias](#) on page 105
- [Creating a zone](#) on page 107
- [Creating a QuickLoop](#) on page 109
- [Creating a fabric assist zone](#) on page 111
- [Creating a configuration](#) on page 113

Introduction

Fabric Manager uses Web Tools to configure and administer Zoning. This chapter discusses high-level Zoning instructions and provides detailed information about Zoning concepts and practices.

Note: Specific Web Tools interfaces vary by firmware. Your interface and functionality may not match the interface shown in the figures and examples in this chapter.

Zoning enables you to partition your SAN into logical groupings of devices that can access each other. For example, you can partition your SAN into two zones, *winzone* and *unixzone*, so that your Windows servers and storage do not interact with your UNIX servers and storage. To configure Zoning, you must use zones, aliases, and configurations.

Zone

A zone is a region within the fabric where switches and devices can communicate. A device can communicate only with other devices connected to the fabric within its specified zone. You can specify members of a zone based on the following identifiers:

- Alias names
- Switch domain and port area number pairs (for example, “2, 20”)
- WWNs
- QuickLoop AL_PAs

Alias

An alias is a logical group of ports, WWNs, or AL_PAs. Specifying groups of ports or devices as an alias makes zone configuration easier, by enabling you to configure zones using an alias rather than a long string of individual members. You can specify members of an alias using the following methods:

- A switch domain and port area number pair. For example: 2, 20
- WWN (device)
- QuickLoop AL_PAs (device)

Configuration

A configuration (often called a *config*) is a group of zones. Zoning is enabled on a fabric by enabling a specific configuration. You can specify members of a configuration with the following identifiers:

- Zone names
- QuickLoop names
- Fabric Assist (FA) zone names

Zoning schemes

Various levels of Zoning (or Zoning *schemes*) isolate systems that have different operating environments. For example, you can create a zone of all ports connected to UNIX servers, or another zone of all ports connected to Windows servers. Zones limit access of devices to other devices connected to the fabric within the same zone.

Zones can be configured dynamically. They can vary in size depending on the number of fabric connected devices. Devices can belong to more than one zone. Because zone members can access only other members of the same zone, a device not included in a zone is not available to members of that zone.

Security

When you enable security, you can access Zoning only with the primary FCS switch. The Zoning icon does not occur on any other switch in the display. If you do not enable security, you can configure Zoning from any switch.

Zoning methods

Zoning methods determine what to display in the subsequent components of the **Zone Administration** window. You can use four methods to define members of a zone. Each method is considered either *hard Zoning* or *soft Zoning*. Hard Zoning defines alias members exclusively with domain and port ID pairs or with WWNs. Soft Zoning defines alias members with a mixture of port IDs and WWNs. [Table 9](#) lists and describes the methods.

Table 9: Zoning methods

Method	Description
Mixed Zoning	Enables you to define members using the port area number, device WWNs, and QuickLoop AL_PAs. This method is considered soft Zoning.
Port Zoning	Enables you to define members using port area number only. This method is considered hard Zoning.
WWN Zoning	Enables you to define zone members using device WWNs. This method is considered hard Zoning.
AL_PA Zoning	Enables you to define zone members using QuickLoop AL_PAs only. This method is considered hard Zoning.

Zoning method and tabs available

Depending on the Zoning method, certain tabs may or may not be available on the **Zone Administration** window. Zoning methods and their available tabs are shown in [Table 10](#).

Table 10: Zoning methods and tabs table

Method	Available Tabs
Mixed Zoning	Alias, Zone, QuickLoop, Fabric Assist, Config
Port Zoning	Alias, Zone, QuickLoop, Fabric Assist, Config
WWN Zoning	Alias, Zone, QuickLoop, Fabric Assist, Config
AL_PA Zoning	Alias, Zone, QuickLoop, Config

Accessing the zone administration window

To access the **Zone Administration** window:

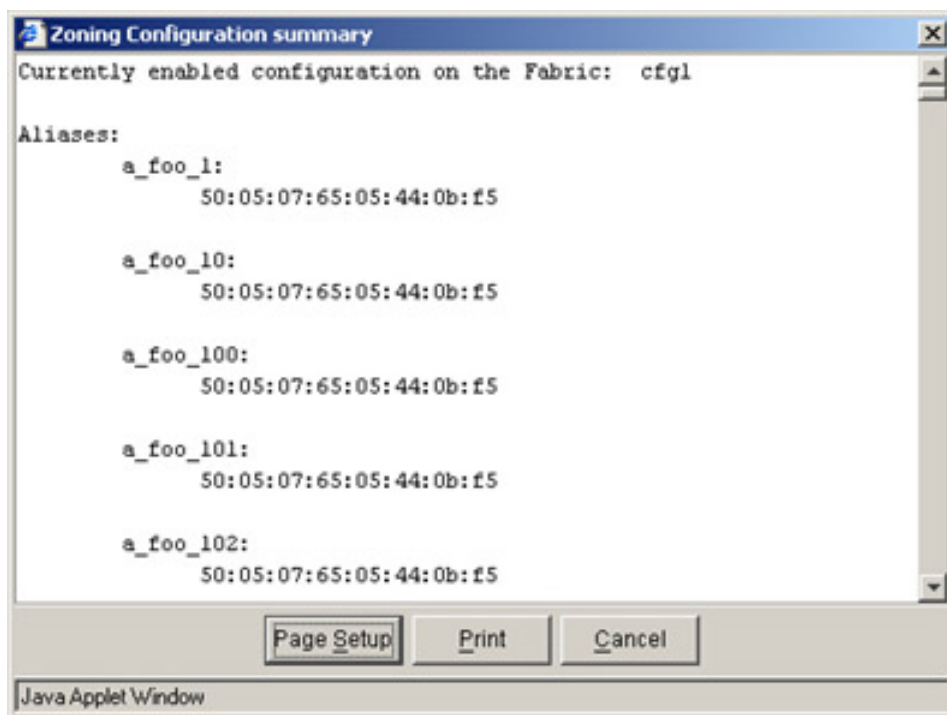
1. From the **View** menu, select **Summary**.
2. In the **SAN Elements** tab, click the fabric that you want to view.
3. From the **Actions** menu, select **Zone Admin...** Web Tools launches and prompts you to log in.
4. Log in to Web Tools. The **Zone Administration** window opens.

Viewing the zone configuration summary

To view the **Zone Configuration summary**, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select **File > Print Summary**. The **Zone Configuration summary** dialog box opens. [Figure 22](#) is an example of the **Zone Configuration summary**.

Figure 22: Zone configuration summary



Adding a WWN to the Zoning database

To add a WWN to the Zoning database, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select **Edit > Add a WWN**. The **Add WWN...** dialog box opens.
3. Enter a WWN value in the **WWN** field.
4. Click **OK**. The WWN is added to the Zoning database and can be used as a member.

Note: This added WWN does not need to currently exist in the fabric. This procedure enables you to configure a WWN as a member in a zone configuration before you add that device to the fabric.

Deleting a WWN from the Zoning database

To delete a WWN from the Zoning database:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select **Edit > Delete a WWN**. The **Delete WWN...** dialog box opens.
3. Enter a WWN value in the **WWN** field.
4. Click **OK**. The WWN is deleted from the Zoning database and is deleted as a member from any alias or zone.

Replacing a WWN in the Zoning database

This procedure enables you to replace a WWN throughout the Zoning database. This is helpful when exchanging devices in your fabric, and for easily maintaining your current Configuration. To replace a WWN in the Zoning database:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select **Edit > Replace a WWN**. The **Replace WWN...** dialog box opens.
3. Enter the WWN to be replaced in the **Replace** field.
4. Enter the new WWN in the **By** field.
5. Click **OK**. The old WWN is replaced in the Zoning database by the new WWN, including within any alias or zone where the old WWN was a member.

Searching for a zone member

To search for a zone member:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select **Edit > Search Member**.
3. Type the zone member name in the **Member Name** field.
4. (Optional) Check one or more checkboxes to narrow the search.
5. Click **Next** to begin the zone member search.

Selecting a Zoning method

The Zoning method you choose determines how members are displayed in the various member selection windows. It also determines whether you are using hard Zoning or soft Zoning.

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. From the **View** pull-down menu, select one of the following:
 - **Mixed Zoning**
 - **Port Zoning**
 - **WWN Zoning**
 - **AL_PA Zoning**

See [“Zoning methods”](#) on page 97 for more information.

Refreshing Zoning

To refresh Zoning, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. From the **View** menu, select **Refresh Zoning** to refresh the Zoning database and delete any unsaved changes. You can view the current Zoning database from the **Zone Configuration Summary** window. For more information, see [“Viewing the zone configuration summary”](#) on page 99.

Refreshing the fabric

To refresh the fabric, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. From the **View** menu, select **Refresh Fabric** to refresh the enabled zone configuration on the fabric and delete any unsaved changes. You can view the current Zoning database from the **Zone Configuration Summary** window. For more information, see [“Viewing the zone configuration summary”](#) on page 99.

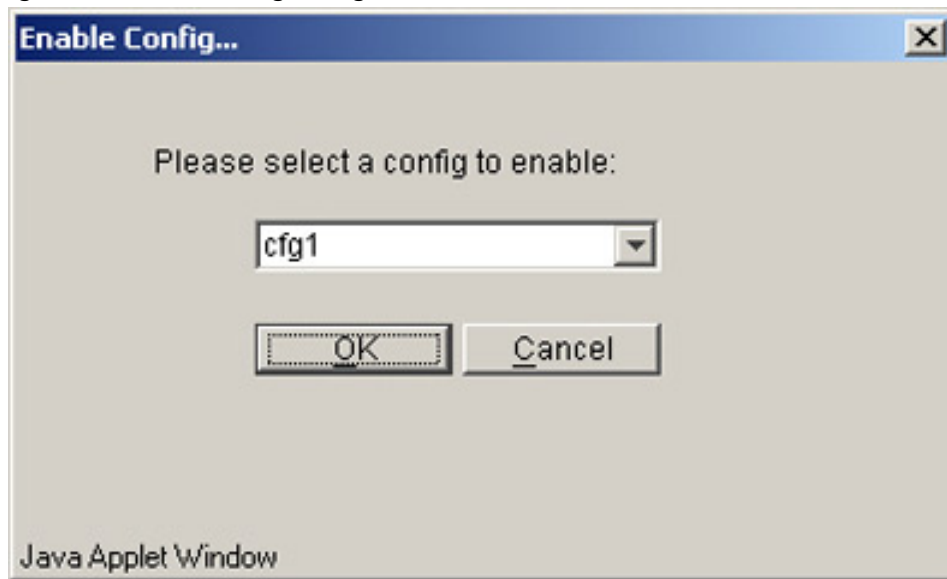
Enabling a configuration

The **Actions > Enable a Config** option enables a configuration that has previously been created (see [“Creating a configuration”](#) on page 113). This option opens a dialog box. Select the desired configuration from the pull-down menu.

Several configurations can reside on a switch at once and you can quickly alternate between configurations. For instance, you may want to enable one configuration during business hours, and enable another overnight. You can enable only one zone configuration at a time.

To create a new configuration, see [“Creating a configuration”](#) on page 113. To enable a configuration, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Click the **View** pull-down menu.
3. Select the desired level of Zoning.
4. Select the **Config** tab.
5. Select **Actions > Enable Config** to activate a configuration. The **Enable Config** dialog box opens (see [Figure 23](#)).

Figure 23: Enable config dialog box

6. Select the configuration to be enabled from the pull-down menu. A warning dialog box opens.
7. Click **Yes** to enable the selected configuration.

Disabling Zoning

The **Actions > Disable Zoning** option disables the enabled configuration. The **Disable Config** dialog box opens. When you disable the Zoning feature, the fabric enters non-Zoning mode and all devices can freely access other devices in the fabric.

When you disable the active configuration, the Zoning feature is disabled on the fabric and all devices within the fabric can communicate with all other devices. This does not mean that the Zoning database is deleted, however; only that there is no configuration active on the fabric. To disable Zoning:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select **Actions > Disable Zoning** to disable the current enabled configuration. The **Disable Config** warning displays.
3. Click **Yes** to disable the current configuration.

Saving changes to an existing configuration

To save changes to an existing configuration, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Click the **Config** tab.
3. Make your changes to the configuration (see [“Creating a zone”](#) on page 107).

Note: You can make changes to a configuration currently enabled; changes are not displayed until the configuration is disabled and re-enabled.

4. Select the **Actions > Save Config Only** option.

Note: The configuration changes are saved. Changes do not take effect until the configuration is re-enabled.

To enable the configuration, see [“Enabling a configuration”](#) on page 102.

Clearing the Zoning database

This procedure disables any active configuration and deletes the entire Zoning database:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Actions > Clear All** option. The **Disable Config** warning displays.



Caution: This action not only disables Zoning on the fabric, but also deletes the entire Zoning database.

3. Click **Yes** to disable the current configuration.

Creating an alias

To create an alias, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **View** menu to determine the method used to view members. The different methods are as follows:

- Mixed Zoning
- Port Zoning
- WWN Zoning
- AL_PA Zoning

The member view method you choose determines how members are displayed in the **Member Selection List** window. See [“View menu”](#) on page 274 for more information.

3. Click the **Alias** tab (selected by default).
4. Click **Create Alias**. The **Create New Alias** dialog box opens.
5. Enter a name for the new alias.
6. Click **OK**.
7. Click any + signs in the **Member Selection List** to view the nested elements. The choices available in the **Member Selection List** depend on the selection that you made in the **View** menu.
8. Highlight an element in the **Member Selection List** that you want to include in your alias. The **Add Member** button becomes active.
9. Click **Add Member** to add alias members. Selected members move to the **Alias Members** window.
10. Repeat [step 7](#) through [step 9](#) to add more elements to your alias.
11. Use the **Add Other** button to include a WWN, port, or QuickLoop (AL_PA) that is not currently a part of the fabric (optional). The new alias is displayed in the **Name** pull-down list.

Modifying the members of an alias

To add or remove the members of an alias:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Alias** tab (selected by default).
3. From the **Name** pull-down menu, select the alias you want to modify.
4. Highlight an element in the **Member Selection List** that you want to include in your alias or highlight an element in the **Alias Members** field that you want to delete.
5. Click **Add Member** to add an alias member or click **Remove Member** to remove an alias member.

Deleting an alias

To delete an alias:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Alias** tab (selected by default).
3. From the **Name** pull-down menu, select the alias you want to delete.
4. Click **Delete**. The **Confirm Deleting Alias** dialog box opens.
5. Click **OK** to delete the alias from the Zoning database.

Renaming an alias

To rename an alias:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Alias** tab (selected by default).
3. From the **Name** pull-down menu, select the alias you want to rename.
4. Click **Rename**. The **Rename an Alias** dialog box opens.
5. Enter a new alias name and click **OK**.

Creating a zone

To create an zone:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **View** menu to determine the method used to view members. The different methods are:
 - Mixed Zoning
 - Port Zoning
 - WWN Zoning
 - AL_PA Zoning

The member view method that you choose determines how members are displayed in the **Member Selection List** window. For more information, see [“View menu”](#) on page 274.

3. Select the **Zone** tab.
4. Click **Create**. The **Create New Zone** dialog box opens.
5. Enter a name for the new zone and click **OK**.
6. Click any + signs in the **Member Selection List** to view the nested elements. The choices available in the **Member Selection List** depend on the selection made in the **View** menu.
7. Highlight an element in the **Member Selection List** that you want to include in your Zone. The **Add Member** button becomes active.
8. Click **Add Member** or use drag and drop to add zone members. Selected members move to the **Zone Members** window.
9. Repeat [step 7](#) and [step 8](#) to add more elements to your zone.
10. Use the **Add Other** button to include a WWN, port, or QuickLoop (AL_PA) that is not currently a part of the fabric (optional). The new zone is displayed in the **Name** pull-down menu.

Modifying the members of a zone

To add or remove members of a zone, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Zone** tab.
3. From the **Name** pull-down menu, select the zone that you want to modify.
4. Highlight an element in the **Member Selection List** that you want to include in your zone or highlight an element in the **Zone Members** field that you want to delete.
5. Click **Add Member** to add a zone member or click **Remove Member** to remove a zone member.

Deleting a zone

To delete a zone:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Zone** tab.
3. From the **Name** pull-down menu, select the zone you want to delete.
4. Click **Delete**. The **Confirm Deleting Zone** dialog box opens.
5. Click **OK**.

Renaming a zone

To rename a zone:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Zone** tab.
3. From the **Name** pull-down menu, select the zone you want to rename.
4. Click **Rename**. The **Rename a Zone** dialog box opens.
5. Enter a new zone name and click **OK**.

Creating a QuickLoop

To create a QuickLoop, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. From the **View** menu, select one of the following methods:
 - Mixed Zoning
 - Port Zoning
 - WWN Zoning
 - AL_PA Zoning

The method that you choose determines how members are displayed in the **Member Selection List** window. For more information, see [“View menu”](#) on page 274.

3. Select the **QuickLoop** tab.
4. Click **Create**. The **Create New QuickLoop** dialog box opens.
5. Enter a name for the new QuickLoop and then click **OK**.
6. Highlight an element in the **Member Selection List** that you want to include in your QuickLoop. (Click any **+** signs in the **Member Selection List** to view the nested elements. The choices available in the **Member Selection List** depend on the selection made in the **View** menu.) The **Add Member** button becomes active.

Note: There is a limit of two members per QuickLoop. Only switches capable of running QuickLoop are displayed in the Member Selection List.

7. Click **Add Member** to add QuickLoop members. Selected members move to the **QuickLoop Members** field.
8. Repeat [step 6](#) and [step 7](#) to add more elements to your QuickLoop.
9. Use the **Add Other** button to include a WWN, port, or QuickLoop (AL_PA) that is not currently a part of the fabric (optional). The new QuickLoop is displayed in the **Name** pull-down menu.

Modifying the members of a QuickLoop

To modify the members of a QuickLoop, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **QuickLoop** tab.
3. From the **Name** pull-down menu, select the QuickLoop you want to modify.
4. Highlight an element in the **Member Selection List** that you want to include in your QuickLoop or highlight an element in the **QuickLoop Members** that you want to delete.
5. Click **Add Member** to add a QuickLoop member or click **Remove Member** to remove a QuickLoop member.

Deleting a QuickLoop from the database

To delete a QuickLoop:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **QuickLoop** tab.
3. From the **Name** pull-down menu, select the QuickLoop you want to delete.
4. Click **Delete**. The **Confirm Deleting QuickLoop** dialog box opens.
5. Click **OK**.

Renaming a QuickLoop

To rename a QuickLoop:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **QuickLoop** tab.
3. From the **Name** pull-down menu, select the QuickLoop you want to rename.
4. Click **Rename**. The **Rename a QuickLoop** dialog box opens.
5. Enter a new QuickLoop name.
6. Click **OK**.

Creating a fabric assist zone

To create a Fabric Assist zone, perform the following:

Note: This example uses the Mixed Zone level.

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Enter the admin level user name and password.
3. From the **View** menu, select **Mixed Zoning**. (You can select any view except the **Devices** view.) The **Mixed View** tab opens.
4. Select the **Fabric Assist** tab.
5. Click **Create**. The **Create New FA** dialog box opens.
6. Enter a name for the new FA zone and then click **OK**. (A fabric host is required.)
7. Highlight the desired Fabric Assist zone members from the **Member Selection List**.
8. Click **Add Member**. The new members are displayed in the **Fabric Assist Members** window. The newly created FA zone also displays in the **Config** tab.

Modifying the members of a fabric assist zone

To add or remove the members of a Fabric Assist zone:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Fabric Assist** tab.
3. From the **Name** pull-down menu, select the Fabric Assist Zone that you want to modify.
4. Highlight an element in the **Member Selection List** that you want to include in your Fabric Assist zone or highlight an element in the **Fabric Assist Zone Members** field that you want to delete.
5. Click **Add Member** to add a Fabric Assist zone member or click **Remove Member** to remove an Fabric Assist zone member.

Deleting a fabric assist zone

To delete a Fabric Assist zone, perform the following:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Fabric Assist Zone** tab.
3. From the **Name** pull-down menu, select the Fabric Assist zone you want to delete.
4. Click **Delete**. The **Confirm Deleting Fabric Assist Zone** dialog box opens.
5. Click **OK**.

Renaming a fabric assist zone

To rename a Fabric Assist zone:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Fabric Assist** tab.
3. From the **Name** pull-down menu, select the Fabric Assist zone that you want to rename.
4. Click **Rename**. The **Rename a Fabric Assist Zone** dialog box opens.
5. Enter a new Fabric Assist zone name and click **OK**.

Creating a configuration

To create a configuration:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. From the **View** menu, select one of the following methods:

- Mixed Zoning
- Port Zoning
- WWN Zoning
- AL_PA Zoning

The member view method that you choose determines how members are displayed in the **Member Selection List** window. See [“View menu”](#) on page 274 for more information.

3. Select the **Config** tab.
4. Click **Create**. The **Create New Config** dialog box opens.
5. Enter a name for the new configuration and click **OK**.
6. Click any + signs in the **Member Selection List** to view the nested elements.
7. Highlight an element in the **Member Selection List** that you want to include in your configuration. The **Add Member** button becomes active.
8. Click **Add Member** to add configuration members. Selected members move to the **Config Members** field.
9. Repeat [step 7](#) and [step 8](#) to add more elements to your configuration.
10. Select the **Actions > Save Config Only** option. The new configuration is displayed in the **Name** pull-down menu. To enable the configuration, see [“Enabling a configuration”](#) on page 102.

Note: Any changes made to the currently enabled configuration are not displayed until the configuration is re-enabled.

Modifying the members of a configuration

To add or remove members of a configuration:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Click the **Config** tab.
3. From the **Name** pull-down menu, select the configuration that you want to modify.
4. Click an element in the **Member Selection List** that you want to include in your configuration or click an element in the **Config Members** that you want to delete.
5. Click **Add Member** to add a configuration member or click **Remove Member** to remove a member from a configuration.

Note: You can make changes to a configuration currently enabled; changes are not displayed until the configuration is disabled and re-enabled.

6. Select the **Actions > Save Config Only** option.

Note: The configuration changes are saved. Changes do not take effect until the configuration is re-enabled.

To enable the configuration, see [“Enabling a configuration”](#) on page 102.

Deleting a configuration

Note: You cannot delete a currently enabled configuration.

To delete a configuration:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Config** tab.

3. From the **Name** pull-down menu, select the configuration you want to delete.
4. Click **Delete**. The **Confirm Deleting Config** dialog box opens.
5. Click **OK**.

Renaming a configuration

To rename a configuration:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Config** tab.
3. From the **Name** pull-down menu, select the configuration you want to rename.
4. Click **Rename**. The **Rename a Config** dialog box opens.
5. Enter a new **Config** name and click **OK**.

Note: You can make changes to a configuration currently enabled; changes are not displayed until the configuration is disabled and re-enabled.

6. Select the **Actions > Save Config Only** option.

Note: The configuration changes are saved. Changes do not take effect until the configuration is re-enabled.

To enable the configuration, see [“Enabling a configuration”](#) on page 102.

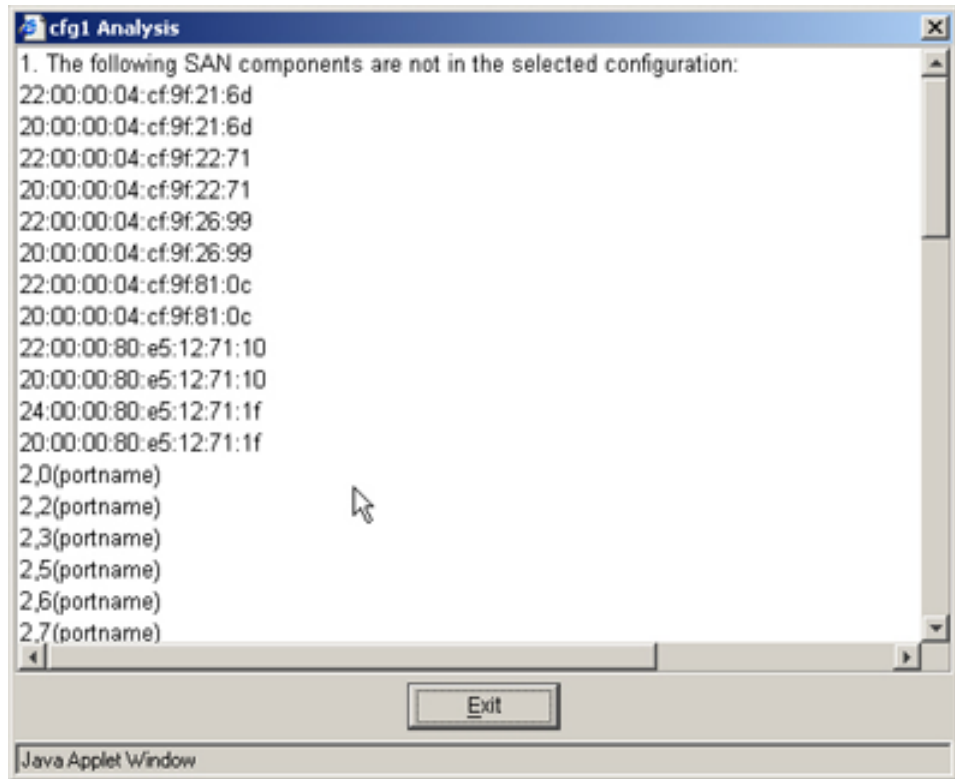
Creating a configuration analysis report

To create a configuration analysis report, execute the following procedure:

1. Access the **Zone Administration** window. For more information, see [“Accessing the zone administration window”](#) on page 98.
2. Select the **Config** tab.
3. From the **Name** pull-down menu, select a configuration to analyze.

4. Click **Analyze Config**. An analysis window opens. An example of an analysis report is shown in [Figure 24](#).

Figure 24: Analyze config report example



5. View the Configuration Analysis. A report displays that lists the following:
 - SAN components (ports, WWNs, and AL_PAs) that are not included in the configuration.
 - SAN components (ports, WWNs, and AL_PAs) that are contained in the configuration but not in the fabric.

Fabric Watch

9

This chapter discusses the following major topics:

- [How Fabric Watch works](#) on page 119
- [How to use Fabric Watch](#) on page 119
- [Accessing Fabric Watch](#) on page 120
- [Viewing alarms](#) on page 120
- [Configuring threshold boundaries and alarms](#) on page 120
- [Enabling and disabling thresholds](#) on page 122
- [Configuring threshold traits](#) on page 122
- [Viewing an alarm configuration report](#) on page 123

Introduction

Fabric Watch software monitors the performance and status of switches and can alert SAN administrators when problems arise. The real-time alerts from Fabric Watch software help SAN administrators solve problems before they become costly failures. Fabric Manager launches Web Tools to configure Fabric Watch, so the options that Fabric Manager provides depend on the individual switch and the firmware that runs on the switch. SAN managers can configure Fabric Watch software to monitor any of the following:

- Fabric events (such as topology reconfigurations and zone changes)
- Physical switch conditions (such as fan speeds, power supply status, and chassis temperature)
- Port behavior and availability (such as state changes, errors, and performance)
- Small form factor pluggables (SFPs)
- Security events (violations and attempted violations)

Note: Specific Web Tools interfaces vary by firmware. Your interface and functionality may not match the interface displayed in the figures and examples in this chapter.

Fabric Watch terms

Table 11 lists and defines Fabric Watch terms.

Table 11: Fabric Watch terms and definitions

Term	Definition
Threshold	A configuration of boundaries, traits, and alarms that determine when an event occurs and how Fabric Watch responds to the event.
Boundary	A limit (high or low) on the acceptable value of a counter.
Counter	The value of the behavior of an element. For instance, the temperature of an SFP or the number of CRC errors.
Trait	Behavioral characteristic of a threshold.
Alarm	Response to an event.
Element	Any component or condition of a switch that Fabric Watch monitors.

Table 11: Fabric Watch terms and definitions (Continued)

Term	Definition
Event	<p>Behavior of a counter that can trigger an alarm. The following events can trigger an alarm:</p> <ul style="list-style-type: none"> ■ A counter value rises above a high boundary (above event) ■ A counter value falls below a low boundary (below event) ■ A counter value rises above or falls below a range of acceptable values (exceeded event) ■ A counter changes (changed event) ■ A counter value returns from a value outside of an acceptable range to a value within the acceptable range (in-between event)

How Fabric Watch works

With Fabric Watch software, SAN administrators can place limits, or *boundaries*, on the behavior of different switch and fabric *elements*. Fabric Watch then monitors these behavior variables, or *counters*, and can issue an alarm when a counter triggers an *event*. An alarm may email the SAN administrator or forward all error information to a proxy switch; the response depends upon how the administrator configures Fabric Watch.

How to use Fabric Watch

To use Fabric Watch:

- Choose elements that you want to monitor.
- Place limits on the acceptable values of those elements (configure threshold boundaries).
- If you want Fabric Watch to alert you whenever a counter changes, configure an alarm for a changed event (this applies only when you monitor counters that must remain within boundaries).
- Choose if and how Fabric Watch alerts you to errant values (configure threshold alarms).
- Choose whether or not Fabric Watch continues to alert you to persistent errant values (configure threshold traits).
- Enable the thresholds that you configured (configure threshold traits).

Accessing Fabric Watch

To access Fabric Watch, execute the following procedure:

1. Verify that the switch that you want to configure includes a Fabric Watch license. For more information, see Chapter 7, “[Licensing](#),” on page 91.
2. In the **SAN Elements** tab, click the switch that you want to configure.
3. From the **Actions** menu, select **Fabric Watch...** A separate browser window opens and prompts you to log in to the switch. After you successfully log in, the Web Tools **Fabric Watch** window opens.

Viewing alarms

To view Fabric Watch alarms, follow these steps:

1. Launch Fabric Watch (see “[Accessing Fabric Watch](#)” on page 120).
2. In the **Fabric Watch** navigation tree, click the class that you want to check for alarms.
3. Click the **Alarm Notification** tab.
4. From the **Select Area** pull-down menu, select the area that you want to check for alarms. All alarms for that area are displayed. For troubleshooting responses to alarms, refer to the Fabric Watch documentation for your firmware.

Configuring threshold boundaries and alarms

Configure Fabric Watch boundaries and alarms to designate the circumstances that trigger events and to specify how Fabric Watch responds to those events. To configure threshold boundaries and alarms, perform the following:

1. Launch Fabric Watch (see “[Accessing Fabric Watch](#)” on page 120).
2. In the **Fabric Watch** navigation tree, click the class that you want configure.
3. Click the **Threshold Configuration** tab.
4. Click the **Area Configuration** subtab.
5. From the **Select Area** pull-down menu, select the area that you want to configure.
6. Enter custom values in the trait fields (such as **Unit**, **High**, and **Low**) in the **Boundary Settings (Default Settings in Parentheses)** partition.

7. From the **Select Boundary Level** pull-down menu in the **Boundary** partition, select **Custom**.
8. In the **Alarm Notification Mechanisms (Default Mechanisms in Parentheses)** partition, check the events that you want to trigger an alarm. You can choose from the following events:
 - Changed
 - Exceeded
 - Below
 - Above
 - In-BetweenAfter you click an event, you can select alarms to notify you when the event occurs.
9. Check the checkbox of each alarm that you want to associate with the events that you selected.
10. From the **Select Alarm Level** pull-down menu in the **Alarm Setting** partition, select **Custom**.
11. Click **Apply**.

Note: For your alarms to function after you configure them, you must enable alarms (see [“Enabling and disabling thresholds”](#) on page 122).

Configuring e-mail alert

To configure the Email Alert alarm, perform the following:

1. Launch Fabric Watch (see [“Accessing Fabric Watch”](#) on page 120).
2. Click the **Email Configuration** tab.
3. In the **Mail To:** field, enter the email address of the administrator who receives email alerts.
4. In the **Mail Status** partition, click the **Enable** radio button and then click **Apply**.

Enabling and disabling thresholds

Execute the following procedure to enable or disable alarms:

1. Launch Fabric Watch (see “[Accessing Fabric Watch](#)” on page 120).
2. In the **Fabric Watch** navigation tree, click the class with the alarms that you want to enable or disable.
3. Click the **Threshold Configuration** tab.
4. From the **Select Area** pull-down menu, select the area with the alarms that you want to enable or disable.
5. Click the **Element Configuration** subtab.
6. From the **Select Element** pull-down menu, select the element that you want to enable or disable.
7. In the **Status** partition, click the **Enable** or **Disable** radio button.
8. Click **Apply**. Web Tools enables or disables the element.

Configuring threshold traits

Configure threshold traits to designate if and when Fabric Watch monitors an element. To configure threshold traits, perform the following:

1. Launch Fabric Watch (see “[Accessing Fabric Watch](#)” on page 120).
2. In the **Fabric Watch** navigation tree, click the class that you want to configure to a different behavior.
3. Click the **Threshold Configuration** tab.
4. From the **Select Area** pull-down menu, select the area that you want to configure to a different behavior.
5. Click the **Element Configuration** subtab.
6. From the **Select Element** pull-down menu, select the element that you want to configure to a different behavior.
7. Click the **Triggered** radio button to configure triggered behavior or click **Continuous** to configure continuous behavior.

Note: If you click the **Continuous** radio button, enter a time interval in the **Time Interval** pull-down menu, or select an interval from the pull-down menu.

8. Click **Apply**.

Viewing an alarm configuration report

View an alarm configuration report to review information about Fabric Watch settings and thresholds. For detailed information on the configuration report, see “[Configuration report tab](#)” on page 292. To view the configuration report, perform the following:

1. Launch Fabric Watch (see “[Accessing Fabric Watch](#)” on page 120).
2. In the **Fabric Watch** navigation tree, click the class that you want to configure to a different behavior.
3. Click the **Threshold Configuration** tab.
4. From the **Select Area** pull-down menu, select the area that you want to view.
5. Click the **Configuration Report** subtab.

Call Home

10

This chapter discusses the following major topics:

- [Configuring Call Home](#) on page 127
- [Editing configurations](#) on page 128
- [Globally enabling or disabling Call Home](#) on page 129

Introduction

The Call Home feature of Fabric Manager continuously monitors the status of switches and sends a Call Home email message to user-defined email addresses when a triggering condition occurs. Triggering conditions include the following:

- Switch status change (consists of any change that registers in `switchstatuspolicyshow` command output)
- Switch reboot
- Switch unreachable (experiences a complete loss of connectivity)

Call Home, when enabled, automatically sends an email alert in the event of a status change or a reboot. You must configure Call Home to:

- Send an alert when the host cannot contact the switch (switch unreachable).
- Use an external executable to send out alerts when an event occurs.

The Fabric Manager server monitors the switches that you have discovered, and you can use the Fabric Manager client to configure the following:

- Which switches to monitor
- Global Call Home functionality

The email alert from Call Home includes the following information:

- Reason for call
- Brief description of failure
- Switches on which an event occurred (provides name, IP address for Ethernet and Fibre Channel, and WWN)
- Firmware version
- Switch status and state

The Call Home email alert contains an attachment that includes the following information:

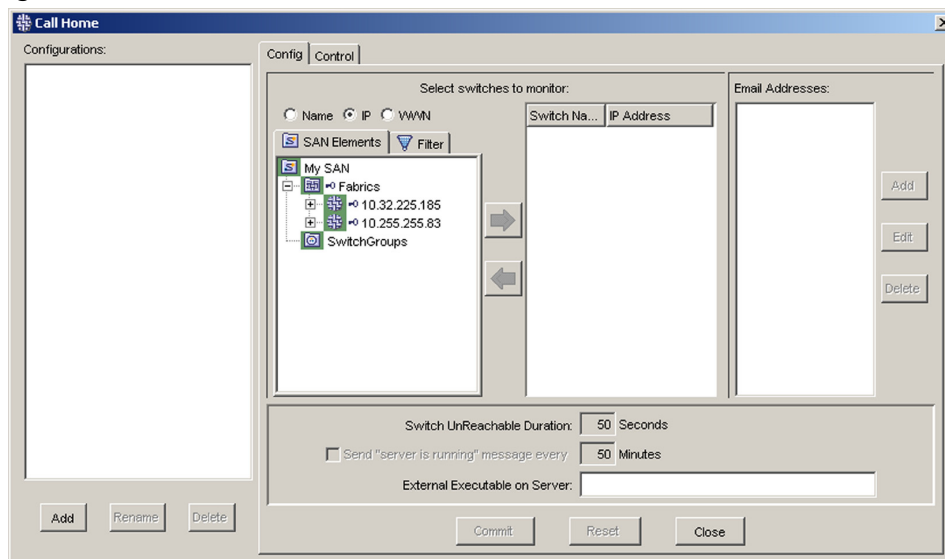
- Detailed switch information
- The 100 most recent events from the event log

Configuring Call Home

To configure Call Home, perform the following:

1. From the **Tools** menu, select **Call Home**. The **Call Home** window opens. The Call Home window is displayed in [Figure 25](#).

Figure 25: Call Home window



2. Under the **Configurations** field on the left side of the display, click **Add**. A **Call Home** dialog box opens.

Note: You do not need to include any email addresses if you choose to configure an external executable ([step 9](#)).

3. In the **Enter a configuration name** field, enter a name for your new configuration and then click **OK**.
4. From the **SAN Elements** tab, select the switches that you want to monitor with Call Home and click the right-pointing arrow to move them to the central window.

Note: Call Home configurations act independently of each other. No configuration ever affects another configuration.

5. In the **Email Addresses** partition of the display, click **Add**. A **Call Home** dialog box opens.
6. In the **Enter an email address** field, enter the email address to which you want Call Home to send mail when an event occurs.
7. In the **Switch UnReachable Duration** field, enter how long (in seconds) the server must fail to contact the switch before Call Home sends an email alert. The duration default is 50 seconds. Fabric Manager does not accept a value less than 40 seconds.
8. (Optional) Click the checkbox to prompt the server to send you a “server is running” message at intervals, and to configure the time interval between messages. These messages let you know that Call Home continues to function properly. The interval default is one minute. Fabric Manager does not accept a value of less than one minute.
9. (Optional) In the **External Executable on Server** field, enter a path to an executable that resides on the Fabric Manager server to run that script when Call Home sends an email alert. For more information, see Appendix J, “[Call Home External Executable Reference](#),” on page 293.
10. Click **Commit**.

Note: You cannot commit a configuration until you add at least one switch ([step 2](#)) and either one email address ([step 5](#)) or the path of an external executable ([step 9](#)).

Editing configurations

You can edit a Call Home configuration at any time. Any change that you make applies when you commit the change. To edit a Call Home configuration, perform the following:

1. From the **Tools** menu, select **Call Home**. The **Call Home** window opens.
2. Click a configuration in the **Configurations** field.

3. Perform any of the following changes:
 - a. Click **Reset** to restore the Call Home configuration displayed in the client UI to what was originally pulled from the server.
 - b. Click **Rename** to change the name of the configuration.
 - c. Click **Delete** below the **Configurations** field to delete the configuration.
 - d. Add or remove switches from the **Select Switches to monitor** the field.
 - e. Add, edit, or remove email addresses from the **Email Addresses** field.
 - f. Reconfigure the **Switch UnReachable Duration** field.
 - g. Reconfigure the **Send “server is running” message every** options.
 - h. Configure an external executable.

Note: At any time before you commit changes, you can click **Reset** to undo all the changes that you made since you last committed the configuration.

4. Click **Commit**.

Globally enabling or disabling Call Home

To globally enable or disable Call Home, perform the following:

1. From the **Tools** menu, select **Call Home**.
2. Click the **Control** tab.
3. Click **Enable** or **Disable**. This action processes on the server immediately.

Note: Fabric Manager enables Call Home by default on the Fabric Manager server. However, you must configure the client to select fabrics to monitor before the Call Home server can monitor switches.

Security Management

11

This chapter discusses the following major topics:

- [Viewing and configuring security policy options](#) on page 134
- [Adding a switch to a secure fabric](#) on page 134
- [Configuring SCC policy options](#) on page 135
- [Configuring FCS options](#) on page 136
- [Configuring telnet policy options](#) on page 136
- [Configuring RSNMP policy options](#) on page 137
- [Configuring WSNMP policy options](#) on page 138
- [Configuring HTTP policy options](#) on page 138
- [Configuring API policy options](#) on page 139
- [Configuring DCC policy options](#) on page 140
- [Configuring MS policy options](#) on page 140
- [Configuring MS policy options](#) on page 140
- [Configuring serial policy options](#) on page 141
- [Configuring front panel policy options](#) on page 142
- [Configuring no node WWN Zoning](#) on page 143
- [Changing the FCS or non-FCS admin security password](#) on page 143

Introduction

Fabric Manager provides a GUI interface to manage security once you enable security with command-line commands. For Fabric Manager to access secure switches, you must configure your security policies (at the command line) as follows:

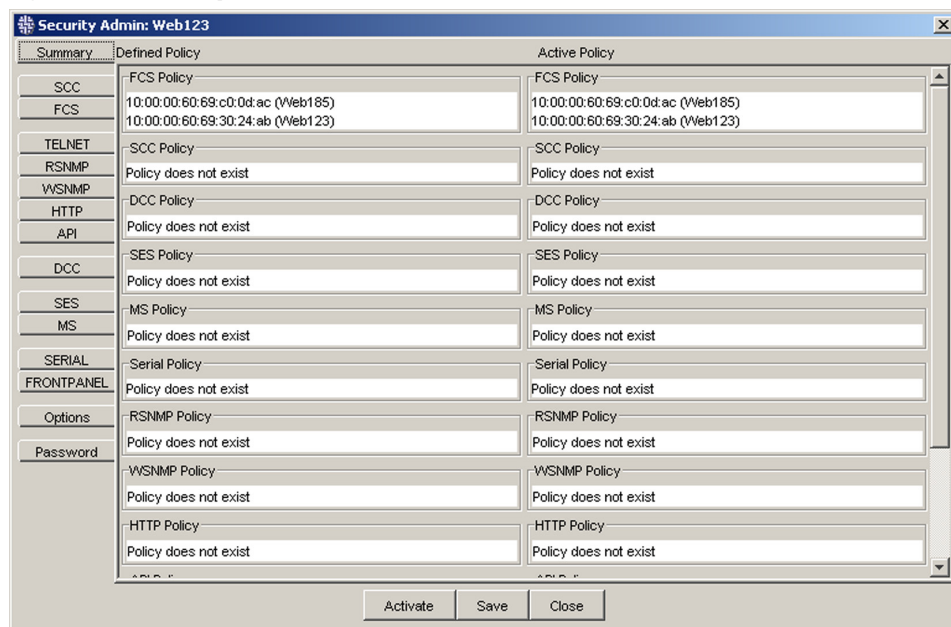
- You must add the IP address of any host that runs the Fabric Manager server to the IP policy of your fabric. The server cannot communicate with the fabric if you do not include this IP address. This is true whether or not the machine also runs the Fabric Manager client.
- You must add the IP address of every Fabric Manager client that you want to be able to access Web Tools and other switch firmware graphical user interfaces via the API policy of your fabric.

Fabric Manager lets you configure SAN security to restrict sensitive operations to a few “trusted” switches. It allows administrators to designate a small number of switches, known as Fabric Configuration Servers (FCSs), to perform fabric-wide management operations. Security acts on a policy basis, which means that you can choose what functionality a switch can access.

You can configure numerous aspects of security with Fabric Manager in the **Security Admin** window (see [Figure 26](#)).

Note: HP does not currently support SES.

Figure 26: Security admin window



Note: For detailed information on security, see the *HP StorageWorks Secure Fabric OS User's Guide*.

To administer security with Fabric Manager:

1. Enable security on a fabric.
2. Administer the following options:
 - Create, remove, or add switch members in the Switch Connection Controls (SCC) policy.

Note: Policies (other than the FCS) do not exist until they are created and populated with switches.

- Add, remove, or move FCS members.
- Add or remove switches from the Telnet, RSNMP, WSNMP, HTTP, and API policies.
- Remove all switches to shut down an access method.
- For Device Connection Control (DCC) policies, configure multiple policies with unique names.

Viewing and configuring security policy options

To configure security on a secure fabric, perform the following:

1. Log in to the primary FCS of the secure fabric that you want to configure (see [Chapter 5](#) for log in instructions).
2. From the **SAN Elements** tab, select the fabric that you want to secure.
3. From the **Actions** menu, select **Security**. The **Security Admin** window opens.
4. Click the **Summary** tab to view your defined policies and active policies.

Note: When you make changes in the Security Admin window, you have the option to click **Apply** to activate your changes, or click **Save** to store your updates but not activate them.

Adding a switch to a secure fabric

To add a switch to a secure fabric, you must define that switch in the SCC policy. The SCC policy defines all switches in the fabric, both FCS and non-FCS. You cannot add a new switch to a fabric if you do not add that switch to the SCC policy. To add a switch to a secure fabric, perform the following:

1. From the **SAN Elements** tab, choose the fabric that you want to secure.
2. From the **Actions** menu, select **Security**.
3. Select the **SCC** tab.
4. Enter the new switch WWN in the empty field.
5. When switches already exist in the fabric, you can specify an asterisk (*) in place of a switch WWN. When added, the * expands to include all switches in the fabric.

6. Select **Add Switch** > to move the switch to the **Fabric Switches** window.
7. Select **Activate** to add the new switch to the secure fabric, implement the security policy, and exit the window.

Configuring SCC policy options

The Switch Connection Controls (SCC) policy defines all switches in the secure fabric (FCS and non-FCS). To create an SCC policy, perform the following:

1. From the **Security Admin** window, click the **SCC** tab.
2. Click **Create Policy**. The WWNs of all current switches in the fabric are displayed in the **Fabric Switches** field.
3. In the **Enter New Switch WWN** field, enter the WWN of a switch that you want to include in the policy, or enter * to add all switches in the fabric.
4. Click **Add Switch**.
5. Repeat [step 3](#) and [step 4](#) to add more switches.
6. Click **Save** to save your changes but not apply them, or click **Activate** to save and apply your changes.

To edit an SCC policy, click the **SCC** tab to perform any of the following actions:

- To delete the policy, click **Delete Policy**.
- To add WWNs to the policy, enter the WWN of another switch in the **Enter New Switch WWN** field and click **Add Switch**. Repeat this step for every WWN that you want to add.
- To remove WWNs from the policy, click a WWN in the **Fabric Switches** field, then click **Remove Switch**.

Configuring FCS options

Switches in your FCS policy serve as *trusted switches*. The first switch in the policy serves as the primary FCS (from which you can configure your fabric), and each subsequent switch serves as a backup FCS. The order in which switches are displayed in the policy represents the order in which each backup switch takes over as primary FCS if the preceding primary FCS fails.

To add an FCS to your fabric, perform the following:

1. From the **Security Admin** window, click the **FCS** (Fabric Configuration Servers) tab.
2. Select a switch from the **Available Switch List** column and use the **Add FCS** button to add it to the **FCS Switch List**. The switches are displayed in the order in which they become a primary FCS switch if the primary FCS fails.
3. (Optional) Click **Add Others...** to open the **Enter WWN** dialog box. Enter a switch WWN in this dialog box to add the switch to the **FCS Switch List**.
4. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your **FCS Switch List**, perform any of the following actions:

- To remove a switch from the FCS list, click the WWN of a switch in the FCS Switch List and click **Remove FCS**.
- To change the order of the FCS switches (to determine which switch becomes the next primary FCS), click a switch and click the up or down buttons beneath the **FCS Switch List** field.

Configuring telnet policy options

The telnet policy contains a list of IP addresses and subnets that can establish telnet connections to any switch in the fabric. Telnet attempts from any IP address or subnet that is not displayed in the policy, will fail. If you create an empty policy, you prevent all telnet access to your fabric. To create a telnet policy, perform the following:

1. Click the **TELNET** tab in the **Security Admin** window.
2. Click **Create Policy**.
3. Type the IP address of a switch that you want to include in the policy in the **Enter IP Address** field.

4. Click **Add IP**. The IP address is displayed in the **Permitted Access Points** field.
5. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your telnet policy, perform any of the following actions:

- To remove a switch from the **Permitted Access Points** field, click the IP address of a switch in the field and click **Remove IP**.
- To delete the telnet policy, click **Delete Policy**.

Configuring RSNMP policy options

Note: You cannot create an RSNMP policy without a WSNMP policy already present.

Configure the RSNMP policy to limit SNMP access to specific, trusted management stations in your environment. To create a RSNMP policy, perform the following:

1. Click the **RSNMP** tab in the **Security Admin** window.
2. Click **Create Policy**.
3. Type the IP address of a switch that you want to include in the policy in the **Enter IP Address** field.
4. Click **Add IP**. The IP address is displayed in the **Permitted Access Points** field.
5. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your RSNMP policy, perform any of the following actions:

- To remove a switch from the **Permitted Access Points** field, click the IP address of a switch in the field and click **Remove IP**.
- To delete the RSNMP policy, click **Delete Policy**.

Configuring WSNMP policy options

Configure the WSNMP policy to limit SNMP access to specific, trusted management stations in your environment. When you add a member to the WSNMP policy, that member automatically gains RSNMP access. To create a WSNMP policy, perform the following:

1. Click the **WSNMP** tab in the **Security Admin** window.
2. Click **Create Policy**.
3. Type the IP address of a switch that you want to include in the policy in the **Enter IP Address** field.
4. Click **Add IP**. The IP address is displayed in the **Permitted Access Points** field.
5. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your WSNMP policy, perform any of the following actions:

- To remove a switch from the **Permitted Access Points** field, click the IP address of a switch in the field and click **Remove IP**.
- To delete the WSNMP policy, click **Delete Policy**.

Configuring HTTP policy options

Configure the HTTP policy to grant access to IP addresses and subnets, so they can establish HTTP connections to the switches in the fabric.

Note: The IP address of your Fabric Manager client must be displayed in this policy or you cannot access the fabric with Fabric Manager.

To create an HTTP policy, perform the following:

1. Click the **HTTP** tab in the **Security Admin** window.
2. Click **Create Policy**.
3. Type the IP address of a switch that you want to include in the policy in the **Enter IP Address** field.
4. Click **Add IP**. The IP address is displayed in the **Permitted Access Points** field.

5. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your HTTP policy, perform any of the following actions:

- To remove a switch from the **Permitted Access Points** field, click the IP address of a switch in the field and click **Remove IP**.
- To delete the HTTP policy, click **Delete Policy**.

Configuring API policy options

Create an API policy to control the workstations that can use the API to write to the fabric.

Note: If you use Fabric Manager to update the API policy to disable API access from the current host (either by creating an empty policy, or by specifically excluding this host from the API policy list), the security transaction becomes locked and it can take up to two hours before Fabric OS releases the security transaction. You cannot modify the policies until the security transaction is released.

To create an API policy, perform the following:

1. Click the **API** tab in the **Security Admin** window.
2. Click **Create Policy**.
3. Type the IP address of a switch that you want to include in the policy in the **Enter IP Address** field.
4. Click **Add IP**. The IP address is displayed in the **Permitted Access Points** field.
5. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your API policy, perform any of the following actions:

- To remove a switch from the **Permitted Access Points** field, click the IP address of a switch in the field and click **Remove IP**.
- To delete the API policy, click **Delete Policy**.

Configuring DCC policy options

Configure DCC policies to bind device ports to specific switch ports. With Fabric Manager, you can create and configure multiple DCC policies with unique names. Populate DCC policies with switch and device WWNs. To create a DCC policy, perform the following:

1. From the **Security Admin** window, click the **DCC** tab.
2. Click **Create Policy**. The **Enter DCC Policy** dialog box opens.
3. In the **Enter Policy Name** field, enter a name for a new policy and click **Create**. The name is displayed in the **Policy** pull-down menu.
4. Use the **Add member**, **Remove member**, and **Add Device WWN...** buttons to populate the policy.
5. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your DCC policies, perform any of the following actions for each individual DCC policy:

- To remove a DCC policy, select the policy from the **Policy** pull-down menu and click **Delete Policy**.
- To rename a DCC policy, select the policy from the **Policy** pull-down menu and then click **Rename Policy**.
- To change the contents of a DCC policy, select the policy from the **Policy** pull-down menu, then select WWNs from the appropriate window, and click **Add member** to add the WWN or **Remove member** to remove the WWN from the policy.
- To add a WWN that is not displayed in the **Switches and Devices** tab, click **Add Device WWN...** and enter the WWN that you want to add.

Configuring MS policy options

Create an MS policy to allow trusted fabric-connected devices to access the management server. With Fabric Manager, you can create and configure multiple MS policies with unique names. Populate MS policies with switch and device WWNs. MS and MS policies are device-based. To create an MS policy, perform the following:

1. From the **Security Admin** window, click the **MS** tab.

2. Click **Create Policy**. The WWN of a device that connects to the fabric is displayed in the **Permitted Access Points** field.
3. Select a device from the **Permitted Access Points** field.
4. Select **Add Device**.
5. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your MS policy, perform any of the following actions:

- To delete the policy, click **Delete Policy**.
- To add a device to the policy, click the device in the **Available Access Points** field, then click **Add Device**. Click **Save** or **Activate** as appropriate.
- To remove a device from the policy, click the device in the **Permitted Access Points** field, then click **Remove Device**. Click **Save** or **Activate** as appropriate.

Configuring serial policy options

Create a serial policy to grant serial port access to specific switches. To create a serial policy, perform the following:

1. From the **Security Admin** window, click the **SERIAL** tab.
2. Click **Create Policy**. You have now created an empty policy, which denies serial access to all switches in the fabric.



Caution: If you create empty policies in the serial, telnet, HTTP, and API policies simultaneously, you can no longer manage security.

3. Click a switch in the **Available Access Points** field and then click **Add Switch** to add it to your policy. Repeat this step for each switch that you want to add.
4. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your serial policy, perform any of the following actions:

- To delete the policy, click **Delete Policy**.
- To add a switch to the policy, click the switch in the **Available Access Points** field, then click **Add Switch**. Click **Save** or **Activate** as appropriate.
- To remove a switch from the policy, click the switch in the **Permitted Access Points** field, then click **Remove Switch**. Click **Save** or **Activate** as appropriate.

Configuring front panel policy options

Configure the front panel policy to enable front panel access to specific 1 Gb StorageWorks SAN switches. To create a front panel policy, perform the following:

1. From the **Security Admin** window, click the **FRONTPANEL** tab.
2. Click **Create Policy**. You have now created an empty policy, which denies front panel access to all switches in the fabric.
3. Click a switch in the **Available Access Points** field and then click **Add Switch** to add it to your policy. Repeat this step for each switch that you want to add.
4. Click **Save** to save your changes but not apply them, or click **Activate** to apply your changes.

To make changes to your front panel policy, perform any of the following actions:

- To delete the policy, click **Delete Policy**.
- To add a switch to the policy, click the switch in the **Available Access Points** field, then click **Add Switch**. Click **Save** or **Activate** as appropriate.
- To remove a switch from the policy, click the switch in the **Permitted Access Points** field, then click **Remove Switch**. (Click **Save** or **Activate** as appropriate.)

Configuring no node WWN Zoning

Fabric Manager provides a tab that lets you enable or disable No Node WWN Zoning. When you enable this feature, security becomes port-oriented. Devices have port and node WWNs. When you disable node Zoning, you ensure that devices with multiple ports cannot access secure fabrics with node WWNs. You must add individual port WWNs to your policies for devices to access your secure fabric. To configure No Node WWN Zoning, perform the following:

1. From the **Security Admin** window, click the **Options** tab.
2. Click the **No Node WWN Zoning** checkbox to enable this policy.

Changing the FCS or non-FCS admin security password

To change the password that implements security, perform the following:

1. From the **Security Admin** window, click the **Password** tab.
2. In the **FCS Administrator Password** field, enter the appropriate password.
3. In the **New Password** field, enter your new password.
4. In the **Verify** field, enter your new password again.
5. Select the **FCS Switches** or **non-FCS Switches** radio button.

Note: Select the **FCS switches** radio button to make a password change to secure access switches.

6. Click **Change Password**.

Firmware Download

12

This chapter discusses the downloading of firmware to multiple switches.

Introduction

Perform a firmware download with Fabric Manager to concurrently download firmware to multiple switches and (as an option) reboot the switches simultaneously. Before you download firmware, verify that your task meets the following requirements:

- All switches that you choose to upgrade can run the firmware that you plan to download.
- All switches that you choose to reboot simultaneously, reside on the same fabric.
- Ports 20 and 21 must be available for the firmware download to function correctly.

Note: When you upgrade firmware from version 3.0.x/4.0.x to version 3.1.x/4.1.x, any port name changes that you have made in Fabric Manager are lost. This ensures that multiple Fabric Manager clients that are simultaneously active during the firmware upgrade do not overwrite each other's port names.

Note: HP requires that all switches in a single fabric or multi-fabric SAN use the same switch firmware revision for each switch model family.

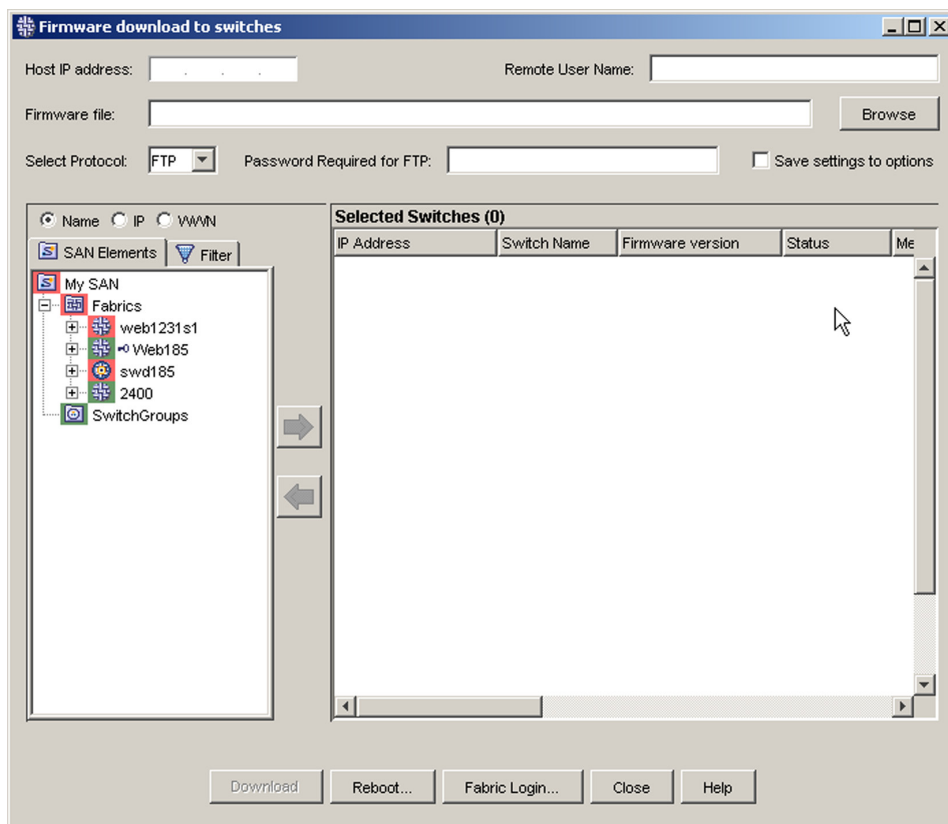
When you download firmware to multiple switches at once and then reboot the switches simultaneously, you use less time than if you update your switches individually.

Performing a firmware download to multiple switches

To download firmware to multiple switches, perform the following:

1. Log in to the switches that you want to upgrade. For more information, see [“Logging in to multiple switches simultaneously”](#) on page 65.
2. From the **Tools** menu, select **Firmware download to switches...** The **Firmware download to switches** window opens. This window is shown in [Figure 27](#).

Figure 27: Firmware download to switches window



3. In the **Host IP address** field, enter the IP address of the FTP server with the firmware file. If you have not configured file transfer options, check the **Save settings to options** checkbox to save your FTP settings as your file transfer options. For more information, see [“Configuring file transfer options”](#) on page 74.

Note: You must click **Download** to commit the file transfer options. If for any other reason you close this window, the file transfer options do not apply.

4. In the **Remote User Name** field, enter your user ID for the FTP server.
5. In the **Firmware file** field, enter the path and name of the firmware file (in UNIX format) or click **Browse** to navigate to the file.
6. From the **Select Protocol** pull-down menu, select **FTP**.
7. In the **Password Required for FTP** field, enter your password.
8. From the **SAN Elements** tab, select the switches that you want to upgrade and move them to the **Selected Switches** window. You can:
 - Navigate to a switch, click the switch, and then click the right-pointing arrow.
 - Click and drag a switch from the **SAN Elements** tab to the **Selected Switches** window.
 - Press and hold **Ctrl**, click multiple switches, and then click the right-pointing arrow.
 - Press and hold **Ctrl**, click multiple switches, and then click and drag the switches from the **SAN Elements** tab to the **Selected Switches** window.
 - Click and drag a fabric to the **Selected Switches** window to move add all of the switches in that fabric to the **Selected Switches** window.

Note: You can perform multiple switch firmware download only to a maximum of five switches running versions of Fabric Manager prior to 4.1.0. In addition, if you want to download firmware to a dual-switch chassis, *you can download firmware only to one logical switch at a time.*

Furthermore, you only need to download the firmware to one logical switch in a dual-switch chassis. If you add both of the logical switches in a chassis to the **Selected Switches** window, you then receive an error prompt when you click **Download**.

9. Click **Download**. When the download completes, click **Reboot...** to open the **Sequenced Reboot** window.

Note: If the switch loses network connectivity during the firmware download from Fabric Manager, the firmware download action times out after 25 minutes for switches running firmware version 2.x/3.x and after 80 minutes for switches running firmware version 4.1.x.

Note: No error message is returned when the firmware download process gets interrupted.

Controlling firmware download reboots

Switches do not automatically reboot after you perform a firmware download. Fabric Manager gives you the opportunity to create a download sequence so you can control the order in which the switches reboot. For more information, see [“Performing a sequenced reboot”](#) on page 183.

ISL Checking

13

This chapter discusses the following major topics:

- [Assigning color status settings](#) on page 150
- [Enabling and disabling ISL checking](#) on page 151
- [Stamp and restamp](#) on page 152
- [Monitoring ISL changes](#) on page 153

Introduction

Enable Inter-Switch Link (ISL) Checking to monitor any changes to your ISL topology. When you enable ISL Checking, Fabric Manager takes a snapshot, or *stamp*, of your ISLs. Whenever you add, remove, or change an ISL, Fabric Manager compares the change to the stamp and triggers an event when mismatches occur. Events change the color and status of related icons in the Fabric Manager display and create log entries. ISL Checking monitors the following:

- When you add a new ISL to the fabric
- When you remove an ISL from the fabric
- When you remove all ISLs between two switches in a fabric
- When you plug an existing ISL into a different port on the same switch

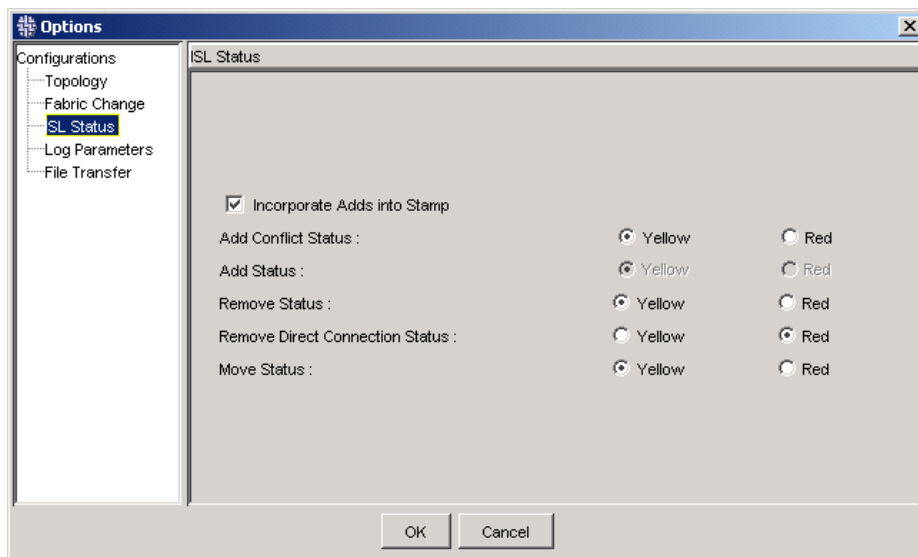
Note: To enable ISL Checking, the launch switch of the fabric must run firmware v2.6.0 or later.

Assigning color status settings

Before you enable ISL Checking, configure ISL Checking options to assign an alarm status level to each ISL Checking event. For more information on the individual ISL Checking options, see “[ISL status options](#)” on page 205.

When an event occurs, the appropriate element changes to the color that you assign. To assign color status, perform the following:

1. From the **File** menu, select **Options...** The **Options** window opens.
2. Click the **ISL Status** branch in the **Configurations** navigation tree. ISL Status options are displayed in the window. ISL Status options are shown in [Figure 28](#).

Figure 28: ISL status options

3. Click the radio buttons that assign the colors that you choose and then click **OK**.

Enabling and disabling ISL checking

To enable or disable ISL Checking, perform the following:

1. Assign color status settings. For more information, see [“Assigning color status settings”](#) on page 150.
2. In the **SAN Elements** tab, click the fabric that you want to check or no longer want to check.
3. From the **Actions** menu, select **ISL > ISL Checking**. A checkmark is displayed next to **ISL Checking** to indicate that you have enabled it. The checkmark is no longer displayed when you disable it.

Note: When you enable ISL Checking on a fabric, a gold center is displayed on the icon of the fabric in the **SAN Elements** tab. When you disable ISL Checking, the gold center is no longer displayed.

Stamp and restamp

When you activate ISL Checking, Fabric Manager takes a stamp of your topology so it can compare changes and register events. If you make permanent changes that do not match the stamp, you must restamp the fabric so that Fabric Manager knows to match your topology against the correct baseline. To restamp your fabric, perform the following:

1. In the **SAN Elements** tab, click the fabric that you want to restamp.
2. From the **Actions** menu, select **ISL > Restamp**.

Note: Stamps take snapshots of domain IDs, so if you change the domain ID of a switch, a remove event occurs and you must restamp the fabric.

Incorporating adds into a stamp

ISL Checking gives you the opportunity to automatically incorporate new ISLs into the stamp (even if you add new ISLs to switches that did not connect to the fabric before). To incorporate new ISLs and switches into your stamp when you add them to your fabrics, perform the following:

1. From the **File** menu, select **Options...** The **Options** window opens.
2. Click the **ISL Status** branch in the **Configurations** navigation tree. ISL Status options are displayed in the window.
3. Click the **Incorporate Adds into Stamp** checkbox and then click **OK**.

Monitoring ISL changes

When your fabric experiences a change that triggers an ISL Checking event, Fabric Manager changes the color (as per your configuration) of appropriate icons to alert you. You can investigate the status change with **Event** view and **Topology** view.

ISL changes and event view

The **Current Status Reason** window displays each switch that changed from HEALTHY/OK status to any other status level. The window includes the new status of each switch and the reason that the status changed. The **Event Log** window opens on the bottom half of the display and includes events that preceded the status change. [Figure 29](#) shows ISL Checking color changes in Event view.

Figure 29: ISL checking status in event view

Current Status Reason:

Status	Switch	Status Reason
Marginal	swd21	* 1 missing power supply triggered the Marg
Down	swd185	* 2 missing power supplies triggered the D0
Down	web1231s1	* Switch Offline triggered the Marginal/War * 3 bad temperature sensors triggered the D

Event Log:

Status	Switch	Number	Time	Count	Level	Me
	swd21	1	Dec 30 13:23:02	1	Information	pdca
	swd21	2	Dec 30 13:23:02	1	Information	pdca
	swd21	3	Dec 30 13:23:02	1	Information	pdca
	swd21	4	Dec 30 13:23:10	1	Information	Firm
	swd21	5	Jan 2 18:49:24	1	Warning	Firm
	swd21	6	Jan 2 19:06:34	1	Information	pdca
	swd21	7	Jan 2 19:06:34	1	Information	pdca

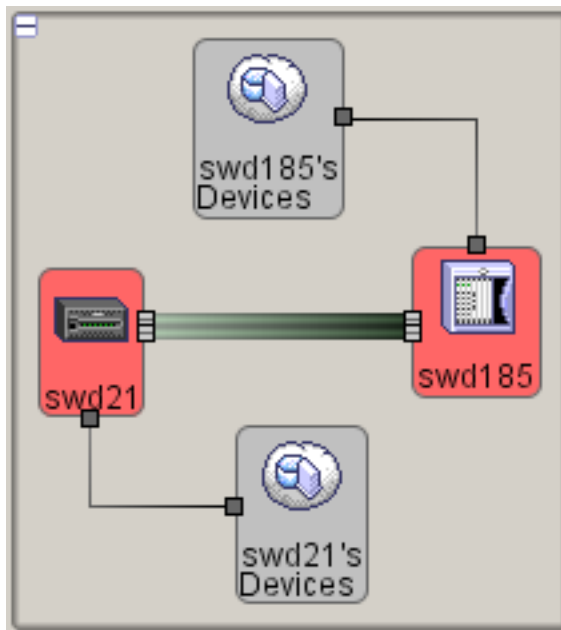
ipermkins@192.168.199.42

ISL changes and topology view

When you enable Fabric Checking, the nodes, links, and link bundles in **Topology** view change color to reflect your ISL Checking color status settings (see [Figure 30](#)).

Note: When a direct connect remove event occurs, **Topology** view does not change color to reflect an ISL event because the ISL is no longer displayed.

Figure 30: ISL checking status in topology view



Fabric Checking

14

This chapter discusses the following major topics:

- [Enabling fabric checking on a fabric](#) on page 157
- [Automatically enabling fabric checking on all fabrics](#) on page 158
- [Disabling fabric checking](#) on page 159
- [Monitoring fabric checking in topology view](#) on page 159

Introduction

You can configure the Fabric Checking feature to monitor the fabric and register events when you add switches to or remove switches from the fabric. When you add or remove a switch from a selected fabric, Fabric Checking adds an entry to the switch event log and changes the status color of the fabric. You can configure Fabric Checking to ignore additions to the fabric, but the software always registers an event when you remove a switch.

Fabric Manager polls the fabric every 15 seconds to determine whether the fabric has changed. [Table 12](#) lists the changes that Fabric Checking monitors and describes how the software responds to the change.

Table 12: Fabric checking alerts

Change	Response
Switch disconnects from fabric	<p>Fabric Manager creates a “ghost” switch image that lasts until you restore the switch to the fabric or disable Fabric Checking. The following actions take place to represent the changes in Fabric Manager:</p> <ul style="list-style-type: none">■ Fabric Manager adds an entry to the switch event log stating that the switch has been removed from the fabric.■ Fabric Manager changes the status color of the fabric.■ A “ghost” switch image is displayed in the Topology View, At-A-Glance Views, and the Switch table.■ Entries for the “ghost” switch are removed from the portgrid, ports, and devices tables.
Switch connects to fabric	<p>Fabric Manager adds an entry to the switch event log and changes the status color of the fabric.</p>

Note: Fabric Checking monitors switches (not devices) removed from and added to a fabric.

Advantage

Fabric Checking allows users to know when changes occur in the fabric. If you administer a fabric to which you want no one to add or remove switches, Fabric Checking helps you monitor that activity.

Enabling fabric checking on a fabric

To enable Fabric Checking, perform the following:

1. In the **SAN Elements** tab, click the fabric that you want to check.
2. From the **Actions** menu, select **Fabric Checking**. A dark blue ring is displayed around the icon in the **SAN Elements** tab, the **Topology** view, and the **At-A-Glance** views to indicate that you enabled Fabric Checking.

Resetting fabric checking

Reset Fabric Checking after you make a permanent addition or deletion to your fabric. To reset Fabric Checking, perform the following:

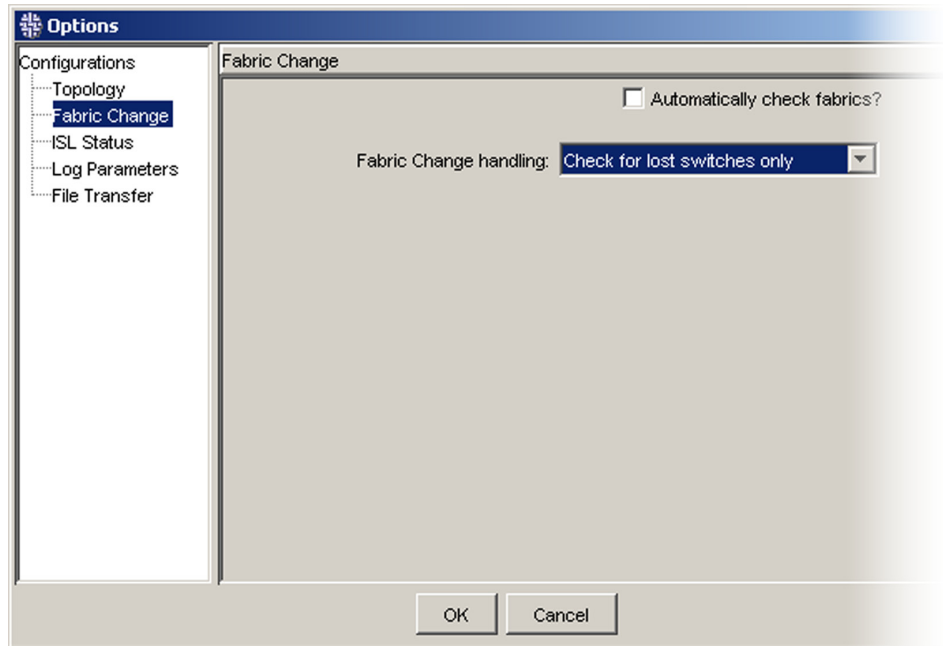
1. In the **SAN Elements** tab, click the fabric that you want to reset.
2. From the **Actions** menu, select **Fabric Checking** to disable fabric checking on the fabric.
3. From the **Actions** menu, select **Fabric Checking** to enable Fabric Checking with the new topology.

Automatically enabling fabric checking on all fabrics

To automatically enable fabric checking on all fabrics that Fabric Manager discovers, perform the following:

1. From the **File** menu, select **Options...** The **Options** dialog box opens (see [Figure 31](#)).

Figure 31: Options window for fabric checking



2. In the **Configurations** tree, click **Fabric Change**. The **Fabric Change** dialog box opens in the right window.
3. In the **Fabric Change** window, check the **Automatically check fabrics?** checkbox and then click **OK**.

Disabling fabric checking

To disable Fabric Checking:

1. In the **SAN Elements** tab, click the fabric that you no longer want to check.
2. From the **Actions** menu, select **Fabric Checking**. The check mark beside **Fabric Checking** is removed.

Monitoring fabric checking in topology view

When you remove a switch from a checked fabric, the switch is displayed as “ghosted” in Topology view and the links to the switch are no longer displayed. When you return the switch, the standard node replaces the “ghost” node.

[Figure 32](#) shows a fabric that runs Fabric Checking.

Figure 32: Fabric before a remove event

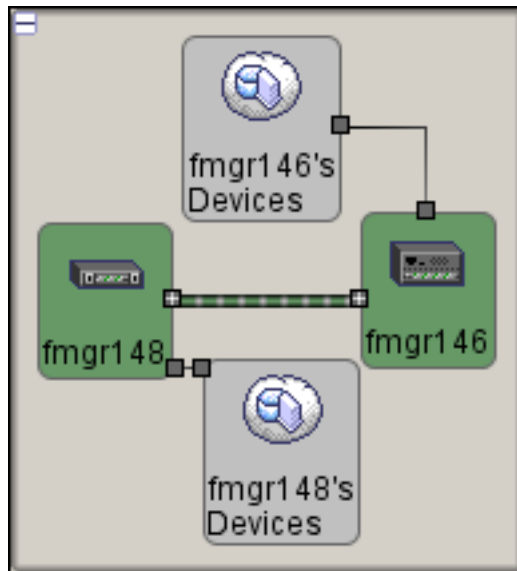


Figure 33 shows the same fabric after the administrator removes a switch. Switch fmgr146 is displayed as “ghosted.”

Figure 33: Fabric after a remove event



Note: If ISL Checking and Fabric Checking are both enabled, and a switch is removed from the fabric, a red color link is displayed in the **Topology** view connecting the “ghosted” switch node to the original switch to which it was connected.

Fabric Merge Check

15

This chapter discusses the fabric merge check function.

Introduction

Perform a fabric merge check to determine whether two fabrics will segment if you merge them. Fabric Manager provides the fabric merge check to compare various configuration elements of two fabrics before you connect those fabrics. Fabric Manager extracts copies of configuration elements from each fabric that can cause the fabric to segment and compares them in memory for inconsistency. Inconsistencies are displayed in the **Merge Check Results** window. Fabric Manager performs the following tests during a fabric merge check:

- Domain ID test
- TimeOutValue test
- Buffer-to-Buffer Credit test
- Disable Device Probe test
- Route Priority per Frame test
- Sequence Level Switching test
- Suppress Class F test
- Long Distance Mode test
- InterOp Mode test
- Data Field Size test
- VC Encoding test
- PID test
- Zoning test (only runs on non-secure fabrics)
- VC Priority test

The following tests run only in a secure fabric:

- Security test
- FCS Policies test
- Version Stamp test
- Management Server Platform test

Checking fabrics

You can check any two fabrics that you have discovered. To perform a fabric merge check, perform the following:

1. Log in to the switches that you want to check. For more information, see [“Logging in to multiple switches simultaneously”](#) on page 65.
2. From the **Tools** menu, select **Fabric Merge...** The **Fabric Merge Check** dialog box opens.
3. From each **fabric** pull-down menu, select one of the two fabrics that you want to merge and click **Check...** A **Merge Check Results** list opens and identifies the inconsistencies between the fabrics.

Note: If you run a Fabric Merge Check between a secure fabric and a non-secure fabric, the results of the Security, FCS Policies, Version Stamp, and Management Server Platform tests display the message `Not applicable to subject fabrics`.

Best practices

If you plan to add a switch to a fabric that uses Zoning, discover that switch with Fabric Manager and run a merge check between that switch and the fabric to which you plan to add it. This check identifies any Zoning and configuration mismatches before you physically connect the switch.

Comparing Configurations

16

This chapter discusses the following major topics:

- [Saving a baseline configuration to a file](#) on page 165
- [Comparing switches to a baseline](#) on page 166
- [Customizing baseline templates](#) on page 168

Introduction

Fabric Manager can compare the configuration files of your switches to a *baseline* configuration to:

- Validate and ensure consistent configuration settings among the switches in your fabric
- Propagate configuration settings to switches in your fabric
- Store a selection of configuration settings that you can easily propagate throughout your fabric
- Troubleshoot a switch

[Table 13](#) explains the two sources that Fabric Manager can use as baselines.

Table 13: Baseline sources

Source	Explanation
Switch	You can compare multiple switches to one switch that you identify as a baseline.
File	You can save the configuration file of a switch as a file on an FTP server, then compare switches to that file or propagate that file to switches.

Note: You can save portions of a configuration to a file, so you can propagate fabric-wide settings but leave switch-specific settings untouched. For instance, you can save Fabric Watch configuration settings to a baseline, then propagate those settings to an entire fabric and not alter the switchname of any switch in the fabric.

Best practices

The following best practices describe tasks you can perform with the **Save Baseline...** tool to administer your fabric more efficiently:

- Propagate a baseline configuration to each new switch that you add to a fabric to ensure that the switch is compatible with the fabric.
- Propagate the baseline of one fabric throughout a second fabric before you merge the fabrics.
- Propagate a baseline configuration throughout a fabric to ensure consistent Fabric Watch and SNMP settings.

- Create and store multiple baselines that serve different purposes so you can quickly adapt your fabric when it switches function.
- Create a limitless number of baselines.
- Use baselines to recover fabric and switch settings.

Saving a baseline configuration to a file

Note: If you just discovered a fabric and want to save a baseline, wait about 60 seconds to let Fabric Manager discover all port, device, and ISL information. If you do not wait, you receive incomplete results when you run the baseline compare.

Save a baseline from a single switch in a fabric. You can export the following categories of information from the configuration file to the baseline:

- Settings that you can normally assign with the `configure` command
- Settings for Fabric Watch and SNMP

When you create your baseline, Fabric Manager gives you the opportunity to choose what settings you want to add to the baseline and what settings you want to omit. To save a baseline, perform the following:

1. Configure file transfer settings if you have not already done so. For more information, see [“Configuring file transfer options”](#) on page 74.
2. Log in to the switch with the configuration that you want to save as a baseline. For more information, see [“Logging in to multiple switches simultaneously”](#) on page 65.
3. From the **Tools** menu, select **Config > Save Baseline...** The **Save Baseline -- Configuration Template Selection** dialog box opens.
4. Select **Full Configuration** and then click **Next**. The **Save Baseline -- Switch Selection** window opens.
5. From the **SAN Elements** tab, choose the switch with the configuration that you want to save, then click the right-pointing arrow to add it to the right window.
6. Click **OK**. The **Save Baseline -- Parameter Selection** window opens.
7. Check the checkboxes for each setting or group of settings of the configuration file that you want to save to the baseline. Expand and collapse the navigation tree to drill down into your options.

8. Click **Save**. The **Save base file** dialog box opens.
9. Enter a name for your baseline, choose a folder to store it in, and then click **Save**.

Comparing switches to a baseline

When you compare the configuration of a switch to a baseline, Fabric Manager identifies and lists all parameters that do not match. Compare the configuration of one or more switches to a baseline when:

- You plan to merge two fabrics
- You plan to add a new switch to a fabric
- You want to verify that Fabric Watch and SNMP settings are consistent across a fabric
- You need to troubleshoot a segmented fabric

Note: If you just discovered a fabric and want to run Fabric Backup or Diff with Backup, you should wait about 60 seconds to let Fabric Manager discover all port, device, and ISL information. If you do not wait, you receive incomplete results when running the Fabric Backup or Diff with Backup.

Comparing switches to a baseline file

To compare switches to a baseline file:

1. From the **Tools** menu, select **Config > Compare/Download from File**. The **Compare/Download from File -- Select Baseline Configuration** dialog box opens.
2. Navigate to the baseline file and click **Open**. The **Compare/Download from File -- Target Switch Selection** window opens.
3. From the **SAN Elements** tab, select the switches that you want to compare and move them to the right window. You can:
 - Navigate to a switch, click the switch, and then click the right-pointing arrow.
 - Click and drag a switch from the **SAN Elements** tab to the right window.
 - Press and hold **Ctrl**, click multiple switches in the **SAN Elements** tab, and then click the right-pointing arrow.

- Press and hold **Ctrl**, click multiple switches, and then click and drag the switches from the **SAN Elements** tab to the right window.
 - Click and drag a fabric to the right window to move add all of the switches in that fabric to the window.
4. Click **OK**. The **Compare/Download from File -- Switch Configuration comparison and Download** window opens and compares the configurations of the switches to the baseline.

Note: To apply this baseline to the switches that you selected, click **Apply Baseline...**

Comparing switches to a baseline switch

To compare switches to a baseline switch, perform the following:

1. From the **Tools** menu, select **Config > Compare/Download from Switch**. The **Compare/Download from Switch -- Source Configuration Selection** window opens.
2. Navigate to the switch that you want to use as a baseline and then click the right-pointing arrow to move that switch to the right window.
3. Click **OK**. The **Compare/Download from Switch -- Target Switch Selection** window opens.
4. From the **SAN Elements** tab, select the switches you want to compare and move them to the right window. You can:
 - Navigate to a switch, click the switch, and then click the right-pointing arrow.
 - Click and drag a switch from the **SAN Elements** tab to the right window.
 - Press and hold **Ctrl**, click multiple switches in the **SAN Elements** tab, and then click the right-pointing arrow.
 - Press and hold **Ctrl**, click multiple switches, and then click and drag the switches from the **SAN Elements** tab to the right window.
 - Click and drag a fabric to the right window to move add all of the switches in that fabric to the window.

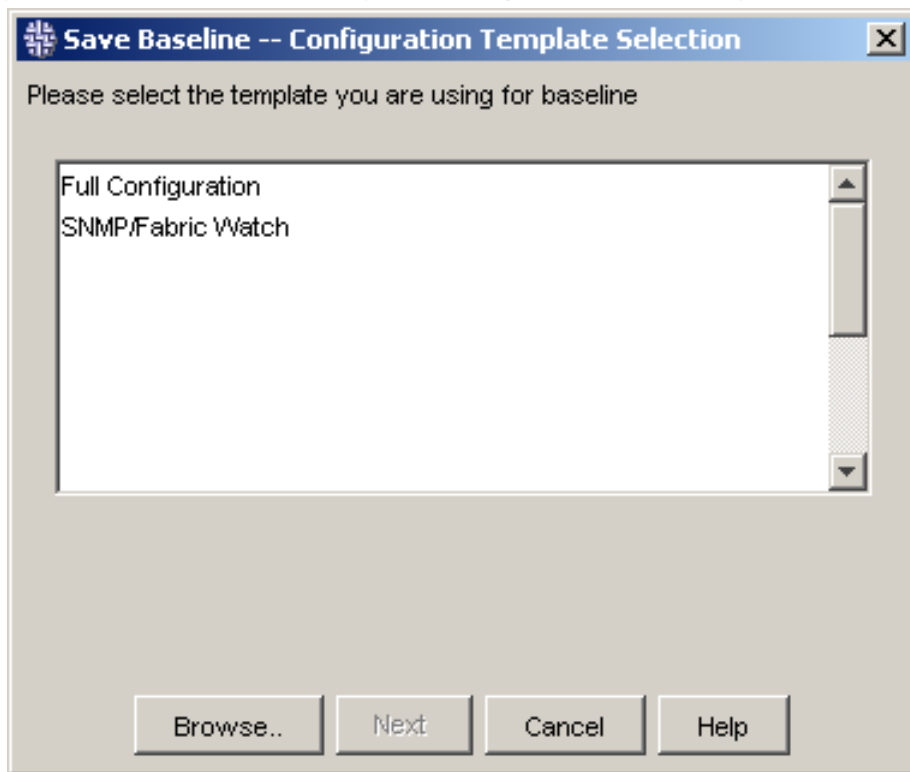
5. Click **OK**. The **Compare/Download from Switch -- Switch Configuration comparison and Download** window opens and compares the configurations of the switches to the baseline.

Note: To apply this baseline to the switches that you selected, click **Apply Baseline...**

Customizing baseline templates

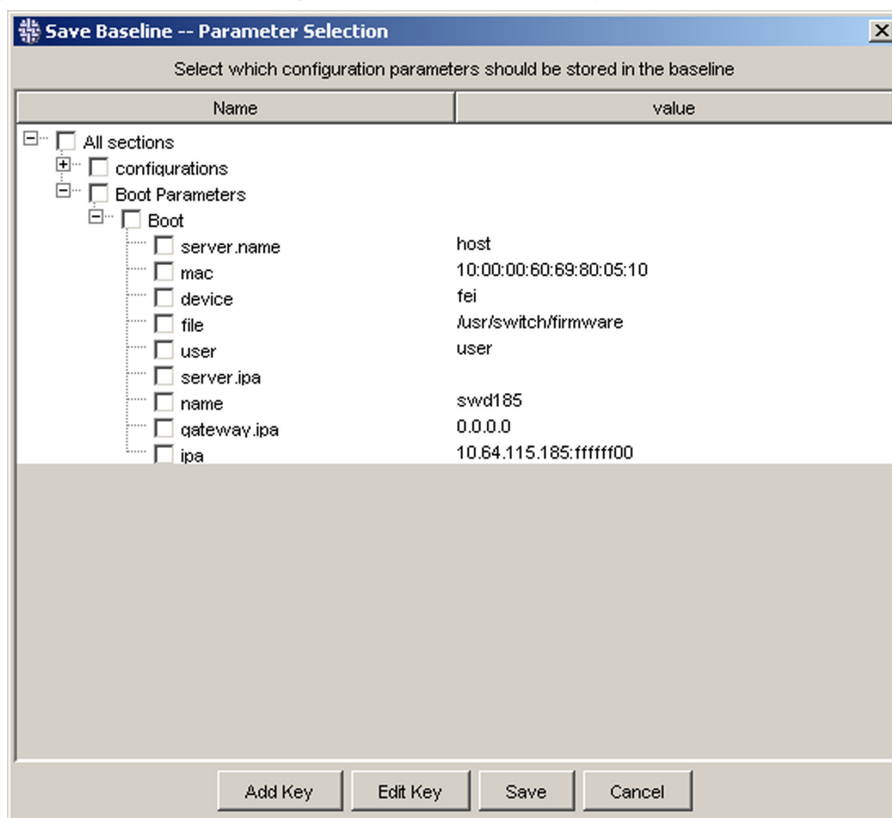
When you save a baseline configuration, Fabric Manager requires that you choose a configuration template. The templates are displayed in the **Save Baseline -- Configuration Template Selection** dialog box, which is shown in [Figure 34](#).

Figure 34: Save baseline -- configuration template selection dialog box



The template that you choose determines what parameters are displayed in the **Save Baseline -- Parameter Selection** dialog box shown in [Figure 35](#).

Figure 35: Save baseline -- parameter selection dialog box



Fabric Manager provides two templates, but you can create custom templates or edit the existing ones. To create a custom template, create an XML file (see [“Anatomy of template files”](#) on page 169) and save it in the **Fabric Manager > baseline > template** directory on your Fabric Manager server. The **Full Configuration** and **SNMP/Fabric Watch** template files are displayed in this directory.

Anatomy of template files

To customize a baseline template file, you must define custom XML tags. This section describes those tags.

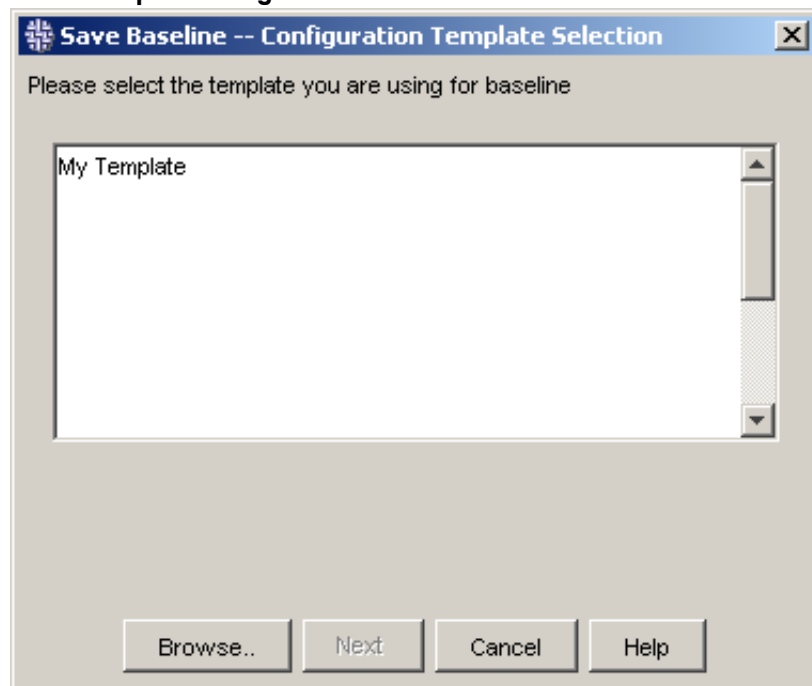
Description tag

The **Description** tag encloses the **summary** tag, which defines what template title is displayed in the **Save Baseline -- Configuration Template Selection** dialog box. This example displays **My Template** in the dialog box:

```
<Description>
  <summary>My Template</summary>
  <detail>This will show my custom parameters</detail>
</Description>
```

The results of this configuration are shown in [Figure 36](#).

Figure 36: Description change results



Section tag

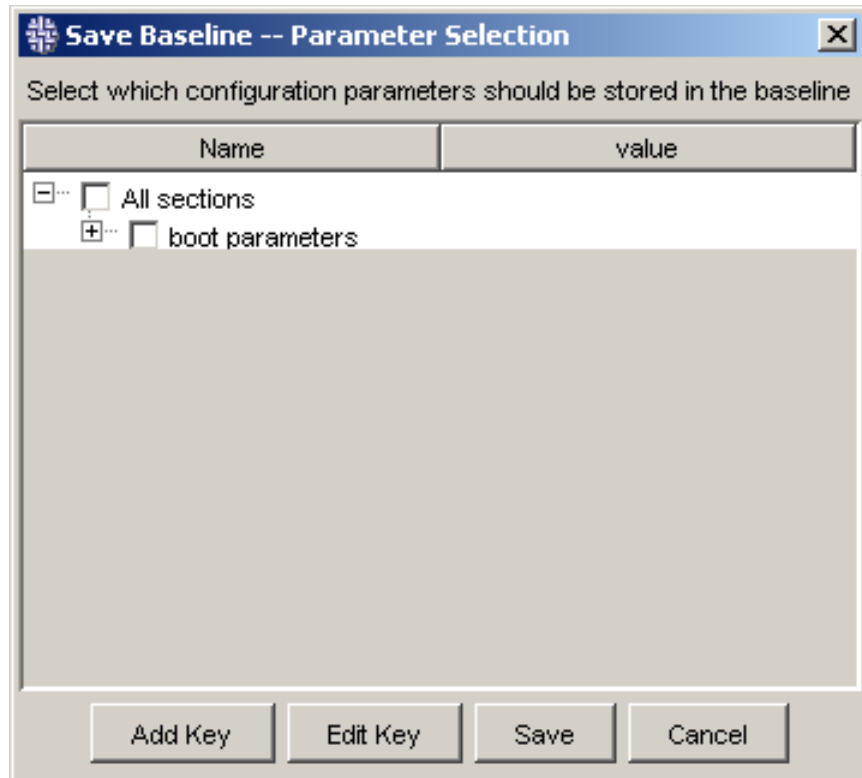
Each **section** tag adds a section from the configuration file to the template. Sections are displayed in the configuration file as text in square brackets ([]). Section tags contain **prefix** tags.

In the example that follows, the **section** tag uses a *Boot Parameters* **value** attribute to add the **Boot Parameters** section of the configuration file to the display. It uses a Boot Parameter **text** attribute to identify the checkbox in the **Save Baseline -- Parameter Selection** dialog box. This **section** tag includes a **prefix** tag to add parameters to the section. For example:

```
<section value="Boot Parameters" text="boot parameters">
  <prefix ID="boot" text="Boot"/>
</section>
```

The results of this configuration are shown in [Figure 37](#).

Figure 37: Section change results



Prefix tag

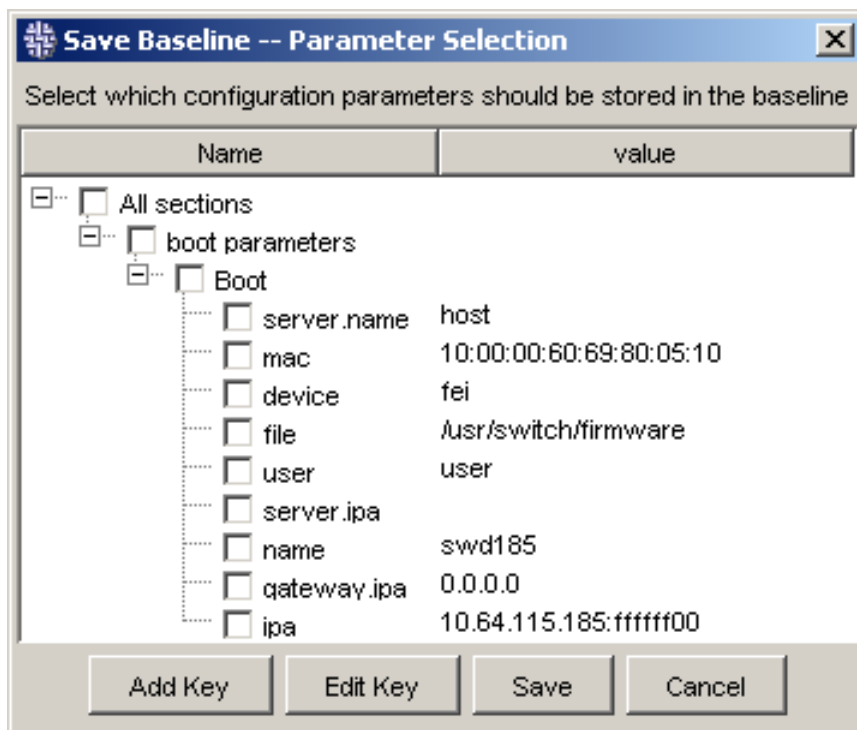
The **prefix** tag adds parameters to the template. Every parameter in the configuration file includes a prefix before the first dot. Set the **ID** attribute of the **prefix** tag to add all configuration file parameters that use that prefix to the template. For instance, if you set the **ID** attribute to **route**, parameters such as `route.delayReroute`, `route.embeddedPortBcast`, and `route.stickyRoutes` are displayed in your template. Set the **text** attribute to define the text that accompanies the parameter in the **Save Baseline -- Parameter Selection** dialog box.

The following example adds all parameters in the *configuration* file that begin with **boot.** to the template:

```
<prefix ID="boot" text="Boot"/>
```

The results of this configuration are shown in [Figure 38](#).

Figure 38: Prefix change results



Creating or editing a template

To create a custom baseline template, perform the following:

1. Open `fullBaseLineTemplate.xml` in a text editor.

Note: In a Windows environment, Notepad does not work. To edit the XML document, you must open the file in WordPad or a similar application that recognizes carriage returns.

2. Edit the text displayed between the `<summary>` and `</summary>` tags to configure the template name displayed in the **Save Baseline -- Configuration Template Selection** dialog box.

3. Add or remove **section** tags to include or remove sections from the **Save Baseline -- Parameter Selection** dialog box.
4. Add or remove **prefix** tags to **section** tags to include or remove parameters from the **Save Baseline -- Parameter Selection** dialog box.

Note: In each section, include only prefixes displayed in the analogous section in the configuration file.

5. Save the file to customize the existing file, or save the file in the same directory with a different file name to create a new configuration.

Complete Fabric Backup and Compare



17

This chapter discusses the following major topics:

- [Backing up a fabric](#) on page 177
- [Comparing a fabric to a backup](#) on page 177

Introduction

The Backup action in Fabric Manager aggregates a number of the features of the application to create a thorough backup file of your entire fabric. This action backs up the following information about a fabric to one file:

- The configuration file of every switch in the fabric
- The license keys for every switch in the fabric
- A list of switches that belong to the fabric
- An ISL stamp

Note: The Backup action does not store the current ISL stamp. It creates a stamp of the ISLs as they are displayed at the moment of the backup.

- All zone definitions (and notes the active zone)
- Which firmware version each switch runs
- Name server information

Once you back up your fabric, you can compare the settings of your live fabric to the settings in your baseline file. Fabric Manager displays the discrepancies between the two in HTTP format.

Backing up a fabric

Note: Verify that Fabric Manager has discovered all fabric information before you perform a backup. If you just discovered a fabric and want to run a backup, wait about 60 seconds to let Fabric Manager discover all port, device, and ISL information. If you do not wait, you receive incomplete results when you run the backup compare.

To back up a fabric:

1. From the **SAN Elements** tab, click the fabric that you want to back up.
2. From the **Actions** menu, select **Backup...** The **Backup fabric configuration-Select a folder** dialog box opens.
3. Select a directory to store your backup file and click **Backup now**. A **Backup Result Details** window opens and displays the contents of your new backup file.

Comparing a fabric to a backup

To compare a fabric to a backup:

1. From the **SAN Elements** tab, click the fabric that you want to check against a backup.
2. From the **Actions** menu, select **Diff with backup...** The **Diff fabric configuration with backup** dialog box opens.
3. Navigate to the directory that contains your backup and click **Diff**. The **Live/Backup Configuration Difference** window opens and lists the discrepancies between your live fabric and your backup.

Sequenced Reboot

18

This chapter discusses the following major topics:

- [Creating a reboot group](#) on page 181
- [Performing a sequenced reboot](#) on page 183

Introduction

With Fabric Manager, you can define groups of switches that reboot simultaneously, then configure groups to reboot sequentially. Reboot groups let you simultaneously reboot switches that run the same firmware, serve the same function, reside in the same physical location, or share any other attribute by which you want to group them. [Table 14](#) defines the critical terms in this section.

Table 14: Sequenced reboot terms

Term	Definition
Reboot group	A group of switches (from the same fabric) that reboot simultaneously.
Timeout	Occurrence where a fabric does not stabilize within the amount of time that you configure.
Stabilization	Occurrence where all WWNs of a fabric are displayed in the <code>fabricshow</code> command output.

Reboot groups consist of one or more switches from a single fabric. You cannot group switches from different fabrics. A switch can belong to only one reboot group.

Advantage

Sequenced reboots give sections of your SAN an opportunity to reboot and stabilize before other switches in the fabric begin to reboot, which reduces the load of inter-switch traffic on the SAN.

Reboot strategies

Use the following reboot strategies to take full advantage of this feature:

- Simultaneously reboot switches that run the same firmware.
- Simultaneously reboot switches of the same model.
- Reboot the core switches of a fabric, then reboot the edge switches.
- Reboot the backbone of a large SAN, then reboot other sections.
- Reboot distant physical locations sequentially.

Creating a reboot group

To create a reboot group, perform the following:

1. From the **Tools** menu, select **Reboot > Create Reboot Sequence...** The **Create or change reboot groups and sequence** window opens.
2. Select a fabric from the **Select Fabric** pull-down menu.
3. Click **Create...** The **Create reboot group** dialog box opens.
4. In the **Name of the Reboot Group** field, type a name for the group.
5. In the **Fabric Stabilization timeout** field, specify the amount of time for the fabric to stabilize.
6. In the **What to do if timeout occurs?** field, click one of the following radio buttons:
 - **Prompt** displays a prompt when a timeout occurs that asks whether you want to continue.
 - **Continue** continues the reboot sequence when a timeout occurs.
 - **Abort** terminates the reboot sequence when a timeout occurs.
7. In the **Delay After Fabric Stabilization** field, specify the amount of time that must elapse before the next reboot in the sequence begins.

Note: Fabric Manager considers a fabric stable when all WWNs are displayed in the `fabricshow` command output.

8. Click **OK**. Your reboot group is displayed in the **Reboot Groups** tree.

When your reboot group is displayed in the **Reboot Groups** tree, bracketed text is displayed next to the name of the group. The text in the brackets represents the fabric stabilization timeout duration, timeout option, and delay after fabric stabilization options that you configured. For example:

```
[1m, P, 2m]
```

In this example, 1m identifies a stabilization timeout of one minute, P indicates that Fabric Manager will prompt you if a timeout occurs, and 2m indicates that two minutes will elapse before the next reboot in the sequence begins.

Assigning switches to a reboot group

To assign switches to a reboot group:

1. From the **Tools** menu, select **Reboot > Create Reboot Sequence...** The **Create or change reboot groups and sequence** window opens.
2. Select a fabric from the **Select Fabric** pull-down menu. The switches in that fabric are displayed in the **Unassigned Switches** window.
3. Click the reboot group that you want to populate.
4. Click a switch that you want to add to the group, click the left-pointing arrow, and then click **OK**.

Note: To add multiple switches simultaneously, press and hold **Ctrl** and click each switch that you want to add, then click the left-pointing arrow.

Single switch groups

Create a single switch group to account for individual switches that you have not assigned to a group. Single switch groups include these individual switches in the reboot sequence.

To create a single switch group, perform the following:

1. From the **Tools** menu, select **Reboot > Create Reboot Sequence...** The **Create or change reboot groups and sequence** window opens.
2. Select a fabric from the **Select Fabric** pull-down menu.
3. Select a switch from the **Unassigned Switches** window. To create multiple single-switch groups, select multiple switches. Each switch is then made into its own group.
4. Click **Create single switch groups....** The **Create single switch reboot groups** dialog box opens.
5. In the **Name of the Reboot Group** field, type a name for the groups.

6. In the **What to do if timeout occurs?** field, click one of the following radio buttons:
 - **Prompt** displays a prompt when a timeout occurs that asks you if you want to continue.
 - **Continue** continues the reboot sequence when a timeout occurs.
 - **Abort** terminates the reboot sequence when a timeout occurs.
7. In the **Delay After Fabric Stabilization** field, specify the amount of time that must elapse before the next reboot in the sequence.

Note: Fabric Manager considers a fabric stable when all WWNs are displayed in the `fabricshow` command output.

8. Click **OK**. Your reboot group is displayed in the **Reboot Groups** tree.

Performing a sequenced reboot

To set up a sequenced reboot, perform the following:

1. Log in to the switches that you want to reboot. For more information, see [“Logging in to multiple switches simultaneously”](#) on page 65.
2. From the **Tools** menu, select **Reboot > Sequenced Reboot...** The **Sequenced Reboot** window opens.
3. Select a fabric from the **Select Fabric** pull-down menu.
4. In the **Reboot Groups** tab, click the group that you want to reboot first, then click the right-pointing arrow to add it to the **Selected Switches** window.
5. Repeat [step 4](#) to add additional groups in the order that you want them to reboot.

Note: To rearrange the order of the reboot sequence, click the up and down arrow keys in the **Sequenced Reboot** window.

6. Click **Fastboot** or **Reboot** to begin the sequenced reboot. Fabric Manager prompts you several times to be sure that you want to proceed. The prompt presents potential problems in your fabric. A message is displayed at the end of the reboot sequence to list successful and unsuccessful reboots.

FDMI-Capable HBA Firmware Download

19

This chapter discusses the downloading of firmware to an HBA.

Introduction

Fabric Manager supports up to 50 firmware downloads to multiple HBAs simultaneously.

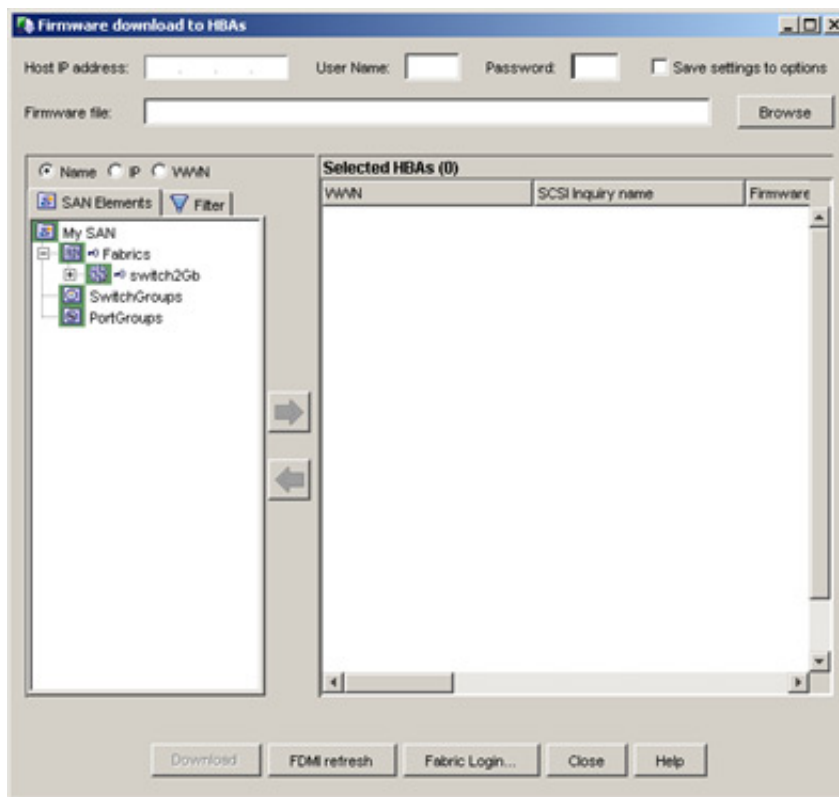
Note: You can perform a firmware download to an HBA only if the HBA is connected to a switch running firmware version 3.1.x or 4.1.x.

Note: Simultaneous firmware downloads to one or more HBAs on the same host from multiple Fabric Manager Clients, is not supported. Doing so may corrupt the firmware on the HBAs, rendering the HBAs unusable.

Downloading firmware to an HBA

To download firmware to one or more HBAs, perform the following:

1. Log in to a switch (or switches) with version 3.1.x or 4.1.x firmware loaded and has FDMI capable HBAs connected to it (or them). For more information, see “[Logging in to multiple switches simultaneously](#)” on page 65.
2. From the **Tools** menu, select **Firmware download to HBAs...** The **Firmware download to HBAs** window opens (see [Figure 39](#)).

Figure 39: Firmware download to HBAs window

3. In the **Host IP address** field, enter the IP address of the FTP server with the firmware file. The IP address is displayed automatically if you have already configured file transfer options. For more information, see [“Configuring file transfer options”](#) on page 74. If you have not configured file transfer options, check the **Save settings to options** checkbox to save your FTP settings as your file transfer options.
4. In the **User Name** field, enter your user ID for the FTP server.
5. In the **Firmware file** field, enter the path and name of the firmware file (in UNIX format), or click **Browse** to navigate to the file.
6. In the **Password** field, enter your password.

7. From the **SAN Elements** tab, select the HBAs you want to upgrade and move them to the **Selected HBAs** window. You can:
 - Navigate to an HBA, click the HBA, and then click the right-pointing arrow.
 - Click and drag an HBA from the **SAN Elements** tab to the **Selected HBAs** window.
 - Press and hold **Ctrl**, click multiple HBAs, and then click the right-pointing arrow.
 - Press and hold **Ctrl**, click multiple HBAs, and then click and drag the HBAs from the **SAN Elements** tab to the **Selected HBAs** window.
 - Click and drag a fabric to the **Selected HBAs** window to add all of the HBAs in that fabric to the **Selected HBAs** window.

Note: Non-FDMI capable HBAs are displayed with a grey background. If Fabric Manager detects that the device is no longer in the Name Server, the device is displayed with a grey background in the **Firmware Download to HBAs** window until the device logs in to the Name Server again.

8. Click **Download to** begin the firmware download. Fabric Manager prompts you with a confirmation dialog box.
9. Click **OK** to proceed or **Cancel** to abort. Fabric Manager provides a report of successful and unsuccessful downloads.

Note: You can click **Refresh FDMI** to refresh FDMI information available in the **Firmware Download to HBA** window for the selected HBAs.

Monitor and View Your SAN

20

This chapter discusses the following major topics:

- [Viewing your fabric with topology view](#) on page 190
- [Viewing fabric events with event view](#) on page 191

Introduction

After you establish your SAN, use Fabric Manager to view and monitor the behavior of your fabrics. **Topology** view and **Event** view continuously provide information about the events and layout of your fabrics.

Viewing your fabric with topology view

Topology view provides a graphical representation of your fabric. For detailed information, see “[Topology view](#)” on page 251.

Note: **Topology** view may take a long time to open. **Topology** view options may also respond slowly.

After you click a fabric in the **SAN Elements** tab, you can perform the following tasks to view more information about your fabric:

- Click and hold on any element in the view to display a *tool tip*. Tool tips provide basic information about the element that you clicked. Tool tips are no longer displayed when you release the mouse button.
- Double-click a device group to open a window that displays each device in the group in detail. This window also provides a **Print** option.
- Double-click a bundled link to view the individual links that compose the bundle. Double-click the individual links to view the bundle again. When you double-click a bundle, you can then view tool tips on each individual link. The tool tip includes the bandwidth, and the ports and switches to which the ISL connects.

Note: You cannot expand a bundle when you engage the **Select** icon.

- Click the **Select** icon in the toolbar to move nodes in the display. Fabric Manager stores the changes that you make to the locations of the nodes.
- Graphically view ISL Checking events and Fabric Checking events. For more information, see “[ISL changes and topology view](#)” on page 154 and “[Monitoring fabric checking in topology view](#)” on page 159.

- Click the **SnapShot** icon to save an image file of your topology. You can use this file as a baseline and compare your fabric to it at a later time.
- From the **Layout** menu, select **Circular**, **Core-Edge**, or **Tree** to view your fabrics from different perspectives.

Viewing fabric events with event view

To view fabric events:

1. Click a SAN, fabric, or switch under the **SAN Elements** tab.
2. From the **View** menu, select **Event**. Two tables are displayed in event view showing fabric events.

[Table 15](#) describes the tables that display fabric events in **Event View**.

Table 15: Fabric event tables

Table	Content
Current Status Reason	Provides the status of an individual switch or of all the switches in a fabric or SAN. This table does not include entries for healthy switches.
Event Log	Provides a list of events from an individual switch or from all of the switches in a fabric or SAN.

[Table 16](#) describes the fields in the Current Status Reason table.

Table 16: Current status reason table fields

Field	Description
Status	Identifies the current status of the switch as X, Y, or Z.
Switch	Identifies the switch that experienced the status change.
Status Reason	Describes the event that changed the status of the switch to its current status.

[Table 17](#) describes the fields in the Event Log table.

Table 17: Event log table fields

Field	Description
Status	Shows the switch status that the event triggered.
Switch	Identifies the switch that experienced the event.
Number	Assigns a number to identify the event in a sequence of events.
Time	Shows the time that the event occurred.

Troubleshooting

21

This chapter discusses the following major topics:

- [Viewing the Fabric Manager application log](#) on page 194
- [Problems and solutions](#) on page 195

Introduction

This chapter provides solutions to problems that you may encounter as you manage your SAN with Fabric Manager. If you cannot troubleshoot the problem successfully, please contact technical support.

Viewing the Fabric Manager application log

When you contact technical support, they may ask you for information from the Fabric Manager Application Log. This log is different from the Event View. The Fabric Manager Application Log logs events for the application, not necessarily the SAN or its elements.

To view events in the Fabric Manager Application Log, click the **File** menu and select **Log...** After you open the window, you can filter the information displayed in the window.

Filter events

To filter events, perform the following:

1. From the **File** menu, select **Log...** The **Fabric Log** dialog box opens.
2. Click **Filter**. The **Filter** dialog box opens.
3. Enter the criteria for the messages that you want to filter and then click **Filter**. The messages that meet your criteria are displayed in the log.

Problems and solutions

This sections describes problems that you may experience with Fabric Manager. A solution to the problem follows each section.

Fabric Manager client cannot access the server

Verify that the client uses the same port as the server. For more information, see [Figure 15](#), on page 38.

Switches and hosts no longer see an HBA after firmware download

During the firmware download to HBA process, if the switch (that the HBA is attached to) is rebooted, or the host (that the HBA is attached to) is rebooted, the firmware in the HBA flash memory can become corrupted and HBA cannot then log in to the switch or respond to the query from the switch. Thus, from both the Fabric Manager and the switch point of view, this HBA is not displayed and drops out of the name server list. To solve this problem, use HBAnyware on the attached host and reload the firmware on the HBA.

503 service unavailable and overloaded error is displayed

Poll the switch with fewer Fabric Manager clients.

This indicates that Fabric Manager discovered a switch whose webserver is throwing the 503 error. When a switch shows this error after Fabric Manager has already discovered the switch, the error is displayed only in the error log. Although switches can be unreachable in Fabric Manager when they experience this error, this error occurs more frequently on switches that run firmware versions v2.x and v3.x.

A zero-switch (empty) fabric occurs in the SAN elements tab

When a switch segments from a fabric that runs Fabric Checking and then rejoins the fabric, an empty fabric remains in the **SAN Elements** tab. To remove this empty fabric, select it and then disable Fabric Checking on that fabric. The fabric is no longer displayed from the tab.

File Menu Reference



This appendix discusses the following major topics:

- [Fabric login window](#) on page 199
- [Groups submenu](#) on page 200
- [Options window](#) on page 203
- [Fabric log window](#) on page 209

Introduction

The **File** menu in Fabric Manager provides basic administrative options to the user. [Table 18](#) describes the options in the **File** menu.

Table 18: File menu options

Option	Description
New...	Opens a new Fabric Manager window. All other Fabric Manager windows remain open.
Close	Closes the active Fabric Manager window. This option is available only when you open multiple Fabric Manager windows.
Fabric Login...	Opens the Fabric Login window to log in to multiple switches. For more information, see "Fabric login window" on page 199.
Groups	Opens the Groups submenu so you can create, edit, import, and export switchgroups and portgroups. For more information on the Groups submenu, see "Groups submenu" on page 200. For information on creating, editing, and deleting groups, see Chapter 6, "Grouping," on page 83.
Options	<p>Opens the Options window to set default options for the following areas:</p> <ul style="list-style-type: none"> ■ Topology ■ Fabric Change ■ ISL Status ■ Log Parameters ■ File Transfers <p>For more information, see "Options window" on page 203.</p>
Log...	Opens the Fabric Log window to view Fabric Manager log entries. For more information, see "Fabric log window" on page 209.
Print...	Opens the Print window to print a report summary or topology.
Print In One Page...	Opens the Print window to print a topology to one page.
Page Setup...	Opens the Page Setup window to configure print options.
Exit	Closes Fabric Manager.

Fabric login window

The **Fabric Login** window lets you log in to multiple switches simultaneously. [Table 19](#) describes the components of the window.

Note: For instructions that explain how to perform a fabric login, see [“Logging in to multiple switches simultaneously”](#) on page 65.

Table 19: Fabric login window components

Component	Description
User Id field	Accepts the user ID that you use to log in to the switches.
Password field	Accepts the password that you use to log in to the switches.
Name/IP/WWN radio buttons	Determines how the SAN Elements tab identifies switches. For more information, see “Selecting identity” on page 66.
SAN Elements tab	Shows the fabrics, switches, and groups that you can log in to.
Filter tab	Filters elements based on alphanumeric text strings.
Directional arrows	Adds or removes switches from the Selected Switches field.
Selected Switches field	Shows the switches that you have chosen to log in to.
IP Address column	Displays the IP address of each switch in the Selected Switches field. Click the column header to list all switches in ascending or descending order by IP address.
Switch Name column	Displays the switch name of each switch in the Selected Switches field. Click the column header to list all switches in ascending or descending order by switch name.
Firmware version column	Displays the firmware that runs on each switch in the Selected Switches field. Click the column header to list all switches in ascending or descending order by firmware version.
UserID column	Displays the user ID that you used to log in to each switch in the Selected Switches field. If you have not logged in to the switch, this field is blank. Click the column header to list all switches in ascending or descending order by user ID.
Status column	Displays the login status of each switch in the Selected Switches field. Click the column header to list all switches in ascending or descending order by status.
Apply button	Applies the user ID and password that you specify to log in to one or more switches.
Close button	Closes the Fabric Login window.
Help button	Opens Fabric Manager Help.

Groups submenu

The **Groups** submenu lets you configure, import, and export Fabric Manager logical groups. [Table 20](#) lists the options in this submenu and describes each option.

Note: For instructions on how to create and edit logical groups, see Chapter 6, “[Grouping](#),” on page 83.

Table 20: Groups submenu items

Option	Description
Edit Switch Groups...	Opens the Edit Switch Groups window to create or modify switch groups. For information on the window, see “ Edit switch groups window ” on page 200.
Edit Port Groups...	Opens the Edit Port Groups window to create or modify port groups. For information on the window, see “ Edit port groups window ” on page 201.
Import Group...	Opens the Import from file window to add a group (from a previously-saved group file) to your user profile. For instructions on how to import a group, see “ Importing groups ” on page 89.
Export Group...	Opens the Export window to export one or more of the groups that you defined in Fabric Manager. For information on the window, see “ Export window ” on page 202.

Edit switch groups window

The **Edit Switch Groups** window lets you create new switch groups and modify or delete existing switch groups. [Table 21](#) describes the components of the window.

Table 21: Edit switch groups components

Component	Description
Name/IP/WWN radio buttons	Determine how the SAN Elements tab identifies switches. For more information, see “Selecting identity” on page 66.
SAN Elements tab	Shows the fabrics and switches that you can add to your groups.
Filter tab	Filters elements based on alphanumeric text strings.
SwitchGroups navigation tree	Shows existing switch groups and lets you move groups within the tree.
Create... button	Opens the Create Group window to create and name a new switch group.
Edit... button	Opens the Edit Group window to rename an existing switch group.
Delete button	Deletes an existing switch group.
OK button	Applies and saves switch group edits.
Cancel button	Aborts switch group edits.
Help button	Opens Fabric Manager Help to the Groups section.

Edit port groups window

The **Edit Port Groups** window lets you create new port groups and modify or delete existing port groups. [Table 22](#) describes the components of the window.

Table 22: Edit port groups window components

Component	Description
Name/IP/WWN radio buttons	Determines how the SAN Elements tab identifies switches. For more information, see “Selecting identity” on page 66.
SAN Elements tab	Shows the fabrics and switches that you can add to your groups.
Filter tab	Filters elements based on alphanumeric text strings.
PortGroups navigation tree	Shows existing port groups and lets you move groups within the tree.
Create... button	Opens the Create Group window to create and name a new port group.
Edit... button	Opens the Edit Group window to rename an existing port group.
Delete button	Deletes an existing port group.

Table 22: Edit port groups window components (Continued)

Component	Description
OK button	Applies and saves port group edits.
Cancel button	Aborts port group edits.
Help button	Opens Fabric Manager Help to the Groups section.

Export window

Use the **Export** window to export one or more logical groups to an XML file. [Table 23](#) describes the components of the window.

Note: For instructions on how to export groups, see [“Exporting groups”](#) on page 88.

Table 23: Export window components

Component	Description
File field	Accepts the path to a file to which you export your groups.
Browse... button	Opens the Export to file window to choose the file to which you export your groups.
Name/IP/WWN radio buttons	Determines how the SAN Elements tab identifies switches. For more information, see “Selecting identity” on page 66.
SAN Elements tab	Shows the fabrics and switches that you can add to your groups.
To Export field	Lists the groups to export.
Group column	Lists the name of each group in the To Export field.
Path column	Lists the path of each group in the To Export field. The path matches the hierarchy in the group’s navigation tree.
Type column	Lists the group type (switch or port) of each group in the To Export field.
Save button	Saves groups to a file.
Cancel button	Aborts the export process.
Delete button	Removes one or more groups that you select from the To Export field.
Help button	Opens Fabric Manager Help to the Groups section.

Options window

The **Options** window lets you configure various Fabric Manager defaults. The **Configurations** navigation tree displays the categories of options that you can configure. [Table 24](#) lists and describes these categories of options.

Table 24: Options categories

Category	Description
Topology	<p>Lets you configure the following defaults:</p> <ul style="list-style-type: none"> ■ Default startup layout ■ Default startup link style ■ Default link bundle state ■ Tile direction ■ Threshold percent ■ Threshold trigger period <p>For more information on these defaults, see “Topology options” on page 204.</p>
Fabric Change	<p>Lets you configure the following:</p> <ul style="list-style-type: none"> ■ Fabric checking ■ Fabric change handling <p>For more information on these defaults, see “Fabric change options” on page 205.</p>
ISL Status	<p>Lets you:</p> <ul style="list-style-type: none"> ■ Incorporate adds into stamp ■ Add conflict status ■ Add status ■ Remove status ■ Remove direct connection status ■ Move status <p>For more information on these defaults, see “ISL status options” on page 205.</p>
Log Parameters	<p>Lets you configure the following:</p> <ul style="list-style-type: none"> ■ Log directory path ■ Fabric Manager log level ■ File log level <p>For more information on these defaults, see “Log parameter options” on page 207.</p>

Table 24: Options categories (Continued)

Category	Description
File Transfer	<p>Lets you configure the following:</p> <ul style="list-style-type: none"> ■ Remote host IP ■ Remote user name ■ Remote directory path ■ Select protocol ■ Password required for FTP <p>For more information on these defaults, see “File transfer options” on page 208.</p>

Topology options

Use these configure topology options to establish the default display of fabric topologies in **Topology** view. [Table 25](#) describes the default topology traits that you can configure.

Table 25: Topology options

Option	Description
Default Startup Layout pull-down menu	<p>Configures the topology layout displayed by default when you open Topology view. You can select from the following layouts:</p> <ul style="list-style-type: none"> ■ Circular layout arranges the switches and nodes of a fabric into a circle. ■ Core-Edge layout visually separates core switches, edge switches, and nodes. ■ Tree layout organizes the fabric hierarchically. <p>For more information on topology layouts, see “Topology view” on page 251.</p>
Default Startup Link Style pull-down menu	<p>Configures the link style displayed by default when you open Topology view. You can select from the following styles:</p> <ul style="list-style-type: none"> ■ Orthogonal style displays all links as horizontal and vertical lines that turn at right angles. ■ Straight style displays all links as straight, unbending lines that connect switches along the shortest path.
Default Link Bundle State pull-down menu	Designates the default link bundle state as expanded or collapsed.
Tile Direction pull-down menu	Designates the way you want non-connected graph objects to be displayed in relation to each other (horizontally or vertically).

Table 25: Topology options (Continued)

Option	Description
Threshold Percent field	Configures the percent of bandwidth above which the link raises a flag.
Threshold Trigger Period field	Configures the amount of time in seconds that the bandwidth of a link must exceed the threshold percent before the link raises a flag. Note: You cannot configure this field to a value greater than 60 seconds.
OK button	Applies configuration changes.
Cancel button	Aborts configuration changes.

Fabric change options

These configure fabric change options to enable and customize Fabric Checking. [Table 26](#) describes the fabric change options that you can configure.

Table 26: Fabric change options

Options	Description
Automatically check fabrics? checkbox	Enables fabric checking on all fabrics currently monitored by Fabric Manager, and any additional fabrics discovered from this point on. For more information on how to configure Fabric Checking, see “Automatically enabling fabric checking on all fabrics” on page 158.
Fabric Change handling pull-down menu	Configures allowable changes to the fabric. Choose one of the following: <ul style="list-style-type: none"> ■ Check for lost and added switches. ■ Check for lost switches only.
OK button	Applies configuration changes.
Cancel button	Aborts configuration changes.

ISL status options

These configure ISL status options to establish:

- Whether Fabric Manager incorporates new switches directly into the stamp
- The severity level of the flag that each status change evokes

[Table 27](#) describes the ISL status options that you can configure.

Note: For instructions on how to configure ISL status parameters, see [“Assigning color status settings”](#) on page 150.

Table 27: ISL status options

Options	Descriptions
Incorporate Adds into Stamp check box	Automatically updates the ISL stamp when you add ISLs to the fabric.
Add Conflict Status radio buttons	Configures the color of the flag (red or yellow) that Fabric Manager raises when you connect an ISL to a port that, according to the stamp, belongs to a different switch in the fabric.
Add Status radio buttons	Configures the color of the flag (red or yellow) that Fabric Manager raises when you add an ISL that does is not displayed in the current stamp. Note: You cannot configure this option if you check the Incorporate Adds into Stamp checkbox.
Remove Status radio buttons	Configures the color of the flag (red or yellow) that Fabric Manager raises when you remove an ISL displayed in the current stamp. Note: You cannot configure Remove status to be more severe than Remove Direct Connection status.
Remove Direct Connection Status radio buttons	Configures the color of the flag (red or yellow) that Fabric Manager raises when you remove every link between two domains. Note: Direct connect remove events occur when you remove every link between two domains and switches.

Table 27: ISL status options (Continued)

Options	Descriptions
Move Status radio buttons	Configures the color of the flag (red or yellow) that Fabric Manager raises when you move an ISL from one port to another port on the same switch. Note: Move events occur when you move one end of an ISL to a different port on the same switch, but do not change the port on the other end of the ISL.

Log parameter options

These options configure log parameters to assign severity levels to various fabric events and to assign a directory in which to store logs. [Table 28](#) describes the log parameter options.

Note: For instructions on how to configure log parameters, see [“Configuring log parameters”](#) on page 70.

Table 28: Log parameter options

Option	Description
Log Directory Path field	Configures the directory to which Fabric Manager stores logs.
Browse button	Opens the Select window to choose a directory in which to store logs.
Fabric Manager Log Level pull-down menu	Assigns the severity level of Fabric Manager application log entries.
File Log Level pull-down menu	Assigns the severity level of file log entries.
OK button	Applies log parameter changes.

Table 28: Log parameter options (Continued)

Option	Description
Cancel button	Aborts log parameter changes.
Restore to Defaults button	Restores all fields to default values.
Help button	Opens Fabric Manager Help .

File transfer options

These configure file transfer options to perform tasks, such as firmware downloads that require FTP to execute. [Table 29](#) describes the file transfer fields.

Note: For instructions on how to configure transfer options, see “[Configuring file transfer options](#)” on page 74.

Table 29: File transfer options

Option	Description
Remote Host IP field	Accepts the IP address of a host that runs FTP.
Remote User Name field	Accepts the user name with which to log in to the host.
Remote Directory Path field	Accepts the path on the server to access.
Select Protocol pull-down menu	Identifies the protocol to use to contact the host.
Password Required for FTP field	Accepts the password with which to log in to the host.
OK button	Applies file transfer changes.
Cancel button	Aborts file transfer changes.
Test button	Tests whether you can successfully access the host with the protocol you configured in the Select Protocol pull-down menu.
Help button	Opens Fabric Manager Help .

Fabric log window

The **Fabric Log** window lists log entries that the application logs about itself as it runs. This log is displayed for customer support purposes only. [Table 30](#) describes the components of this window.

Table 30: Fabric log components

Component	Description
Severity column	Displays the severity of the event that prompted the log entry. Click the column header to list all log entries in ascending or descending order by severity.
Time column	Displays the date and time that the event occurred. Click the column header to list all log entries in ascending or descending order by timestamp.
Module column	Displays the application module associated with the event. Click the column header to list all log entries in ascending or descending order by module.
Message column	Displays messages for customer support. Click the column header to list all log entries in ascending or descending order by message.
Module Instance column	Displays Fabric Manager thread instances. Click the column header to list all log entries in ascending or descending order by application-module instance.
Detail Log Message window	Aggregates a row in the Fabric Log table into a single consolidated message.
Search button	Opens the Search Dialog window. For more information on this window, see “Search dialog window” on page 209.
Filter button	Opens the Filter Dialog window. For more information on this window, see “Filter dialog window” on page 210.
Close button	Closes the Fabric Log window.

Search dialog window

Use the **Search Dialog** window to search the contents of the log. [Table 31](#) describes the components of the window.

Table 31: Search dialog window components

Component	Description
Message Contains field	Accepts text to search for in the message.
Case Sensitive checkbox	Applies case sensitivity when Fabric Manager searches for the text in the Message Contains field.
Severity pull-down menu	Limits the search to messages of particular severity levels.
Module field	Limits the search to messages with particular modules.
Date Range pull-down menus	Limits the search to messages with time stamps between a particular range (inclusive).
Search button	Begins the search.
Next button	Progresses to the next log entry that meets the search criteria.
Prev button	Returns to the previous entry that met the search criteria.
Close button	Closes the Search Dialog window.

Filter dialog window

Use the **Filter Dialog** window to filter the log entries that the **Fabric Log** window displays. [Table 32](#) describes the components of the window.

Note: The filter excludes all messages that do not meet the criteria of the **Filter Dialog** window.

Note: For instructions on how to filter fabric events, see “[Filter events](#)” on page 194.

Table 32: Filter dialog window components

Component	Description
Message Contains field	Accepts text that Fabric Manager uses as a criteria to filter out a message. Fabric Manager excludes all messages that do not contain the text.
Case Sensitive checkbox	Applies case sensitivity when Fabric Manager filters messages with the Message Contains field.
Severity pull-down menu	Filters out messages of all other severity levels.
Module field	Filters out messages of all other modules.
Date Range pull-down menus	Filters out all messages with dates that do not fall within the date range.
Filter button	Applies the filter.
Close button	Closes the Filter Dialog window.

Edit Menu Reference



This appendix discusses the following topics:

- [Edit view options windows](#) on page 215
- [Edit view options for details](#) on page 215
- [Edit view options for device ports](#) on page 220
- [Edit view options for devices](#) on page 221
- [Edit view options for ports](#) on page 221
- [Edit view options for summaries](#) on page 222
- [Edit view options for switches](#) on page 226

Introduction

The **Edit** menu manages elements of the GUI. [Table 33](#) describes the options in the **Edit** menu.

Table 33: Edit menu options

Option	Description
Copy Table	<p>Copies a table so you can paste it into an application that uses tab-delimited cell and return-delimited row format.</p> <p>To select the Copy Table option, you must first open one of the following views:</p> <ul style="list-style-type: none">■ Devices view■ Portgrid view■ Ports view■ Switches view
Rename	<p>Changes the identifier of a switch, port, or fabric in the SAN Elements tab.</p> <hr/> <p>Note: This option does not reconfigure the Switch Name. It only changes how the fabric or switch is displayed in Fabric Manager.</p> <hr/> <p>To select the Rename option, you must first click one of the following elements:</p> <ul style="list-style-type: none">■ A fabric in the SAN Elements tab■ A switch in the SAN Elements tab■ A port in the SAN Elements tab

Table 33: Edit menu options (Continued)

Option	Description
View Options...	Opens the Edit View Options for <i>X</i> window (where <i>X</i> represents the current active view) to customize the Fabric Manager display. For more information on this window, see “ Edit view options windows ” on page 215.
Change description	<p>Opens the Please enter the new description dialog box to change the description of a pane. Every Fabric Manager view that displays a pane (for instance, Summary view when you click Fabrics in the SAN Elements tab) includes a description. By default, this description reads Double click to add description. This option provides an alternative method to change the description.</p> <hr/> <p>Note: After you change the description of an element, you must click the parent element to view the new description in the pane.</p> <hr/>

Edit view options windows

Each view uses a different **Edit View Options** window, but not all views support the **Edit > View Options...** selection. You can open an **Edit View Options** window with the following views:

- **Device Ports** view
- **Devices** view
- **Ports** view
- **Summary** view (but only when you select a fabric, group, or switch from the **SAN Elements** tab)
- **Switches** view

The **Edit>View Options...** selection is greyed out for all other views.

Edit view options for details

Details vary based on the element that you select in the **SAN Elements** tab. [Table 34](#) lists the elements that you can click in the **SAN Elements** tab and specifies the window that opens. A description of each window follows the table.

Table 34: Elements and edit view option detail windows

Element	Window
My SAN	Not applicable. You cannot select Edit > View Options... when you click My SAN .
Fabrics	Edit View Options for Fabric At-A-Glance Detail
Any given fabric	Edit View Options for Switch At-A-Glance Detail
Any given switch	Edit View Options for Card At-A-Glance Detail (for switches that use cards) Edit View Options for At-A-Glance Port Detail (for all other switches)
Any given card	Edit View Options for Port At-A-Glance Detail
Any given port	Edit View Options for Devices
SwitchGroups	Edit View Options for Logical Group At-A-Glance Detail
Any given switch group	Edit View Options for Switch At-A-Glance Detail
PortGroups	Edit View Options for Port Group At-A-Glance Detail
Any given port group	Edit View Options for Port At-A-Glance Detail

Edit view options for fabrics at-a-glance detail

The **Edit View Options for Fabrics At-A-Glance Detail** window lists the various fabric traits and properties that Fabric Manager can display and lets you choose which options to display in **Summary** view. The **Edit View Options for Fabric Detail** window lets you choose from the following options:

- Launch switch
- Principal switch
- Member switches
- Switch status
- Switch types
- FabricOS versions
- Port information
- Device information
- Active zones

Edit view options for switch at-a-glance detail

The **Edit View Options for Switch At-A-Glance Detail** window lists the various switch traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. The **Edit View Options for Switch Detail** window lets you choose from the following options:

- Switch status
- Switch types
- Fabric OS versions
- Domain ID
- Ethernet IP
- Ethernet Mask
- FCnet IP
- FCnet Mask
- Gateway IP
- WWN
- Switch Role
- Trunk Information
- Member ports
- ISL Ports
- Port status
- Port type
- Port speed
- Light state
- Port information
- Device information

Edit view options for card at-a-glance detail

The **Edit View Options for Card At-A-Glance Detail** window lists the various card traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. The **Edit View Options for Card Detail** window lets you choose from the following options:

- Member ports
- ISL Ports
- Port status
- Port speed
- Light state
- Port information
- Device information

Edit view options for port at-a-glance detail

The **Edit View Options for Port At-A-Glance Detail** window lists the various port traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. The **Edit View Options for Port Detail** window lets you choose from the following options:

- Port number
- Port status
- Port type
- Port WWN
- Port speed
- Light state
- Device information

Edit view options for logical group at-a-glance detail

The **Edit View Options for Logical Group At-A-Glance Detail** window lists the various switch group traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. The **Edit View Options for Logical Group Detail** window lets you choose from the following options:

- Groups information
- Member switches
- Switch status
- Switch types
- Fabric OS versions
- Port information
- Device information

Edit view options for port group at-a-glance detail

The **Edit View Options for Port Group At-A-Glance Detail** window lists the various port traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. The **Edit View Options for Port Group Detail** window lets you choose from the following options:

- Groups information
- Member ports
- ISL ports
- Port status
- Port type
- Port speed
- Light state
- Port information
- Device information

Edit view options for device ports

The **Edit View Options for Device Ports** window lists the various device traits and properties that Fabric Manager can display and lets you choose which options to display in **Device Ports** view. This window lets you choose from the following options:

- Domain ID
- Port
- Port ID
- Port Type
- Fabric Port WWN
- Device Port WWN
- Device Node WWN
- Device Name
- FC4 Type
- COS
- Port IP Address
- Hard Address
- Manufacturer
- Sequence Number
- Device Type Number
- Model
- Manufacturing Plant
- Tag
- Capability

Edit view options for devices

The **Edit View Options for Devices** window lists the various device traits and properties that Fabric Manager can display and lets you choose which options to display in **Devices** view. This window lets you choose from the following options:

- Device Node WWN
- SCSI Inquiry name
- Serial number
- Model description
- Hardware
- Driver
- ROM version
- Firmware
- OS name and version

Edit view options for ports

The **Edit View Options for Ports** window lists the various port traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. This window lets you choose from the following options:

- Fabric
- Switch
- ID
- Status
- Light
- State
- Type
- Speed
- Port Module
- Card Number
- Port Number
- User Port Number

- WWN
- Name

Edit view options for summaries

Summaries vary based on the element that you select in the **SAN Elements** tab. [Table 35](#) lists the elements that you can click in the **SAN Elements** tab and provides the window that opens. A description of each window follows the table.

Table 35: Elements and edit view option summary windows

Element	Window
My SAN	Not applicable. You cannot select Edit > View Options... when you click My SAN .
Fabrics	Edit View Options for Fabric At-A-Glance Summary
Any given fabric	Edit View Options for Switch At-A-Glance Summary
Any given switch	Edit View Options for Card At-A-Glance Summary (for switches that use cards) Edit View Options for Port At-A-Glance Summary (for all other switches)
Any given card	Edit View Options for Port At-A-Glance Summary
Any given port	Edit View Options for Device At-A-Glance Summary
SwitchGroups	Edit View Options for Logical Group At-A-Glance Summary
Any given switch group	Edit View Options for Switch At-A-Glance Summary
PortGroups	Edit View Options for Port Group At-A-Glance Summary
Any given port group	Edit View Options for Port At-A-Glance Summary

Edit view options for fabric at-a-glance summary

The **Edit View Options for Fabric At-A-Glance Summary** window lists the various fabric traits and properties that Fabric Manager can display and lets you choose which options to display in **Summary** view. This window lets you choose from the following options:

- Launch switch
- Principal switch
- Member switches
- Switch status

- Switch types
- Fabric OS versions
- Port information
- Device information
- Active zones

Edit view options for switch at-a-glance summary

The **Edit View Options for Switch At-A-Glance Summary** window lists the various switch traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. This window lets you choose from the following options:

- Switch status
- Switch types
- Fabric OS versions
- Domain ID
- Ethernet IP
- Ethernet Mask
- FCnet IP
- FCnet Mask
- Gateway IP
- WWN
- Switch Role
- Trunk Information
- Member ports
- ISL Ports
- Port status
- Port type
- Port speed
- Light state
- Port information
- Device information

Edit view options for card at-a-glance summary

The **Edit View Options for Card At-A-Glance Summary** window lists the various card traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. This window lets you choose from the following options:

- Blade state
- Power state
- Attn state
- Member ports
- ISL Ports
- Port status
- Port type
- Port speed
- Light state
- Port information
- Device information

Edit view options for port at-a-glance summary

The **Edit View Options for Port At-A-Glance Summary** window lists the various port traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. This window lets you choose from the following options:

- Port number
- Port status
- Port type
- Port WWN
- Port speed
- Light state
- Device information

Edit view options for logical group at-a-glance summary

The **Edit View Options for Logical Group At-A-Glance Summary** window lists the various switch group traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. This window lets you choose from the following options:

- Groups information
- Member switches
- Switch status
- Switch types
- Fabric OS versions
- Port information
- Device information

Edit view options for port group at-a-glance summary

The **Edit View Options for Port Group At-A-Glance Summary** window lists the various port traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. This window lets you choose from the following options:

- Groups information
- Member ports
- ISL ports
- Port status
- Port type
- Port speed
- Light state
- Port information
- Device information

Edit view options for switches

The **Edit View Options for Switches** window lists the various switch traits and properties that Fabric Manager can display and lets you choose which options to display in **Ports** view. This window lets you choose from the following options:

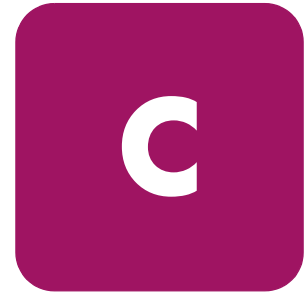
- Name
- IP
- Version
- Status
- Fabric
- ID
- IP Mask
- Gateway
- FCIP
- FC mask
- Responding
- Role
- Domain ID
- WWN
- Serial number
- State
- Is core
- Port count
- Free ports
- ISL count
- Secure Mode
- Using FCIP
- Have UserID
- Has certificate
- Trunk count
- Trunked port count

- Device count
- Ficon mode

Note: HP does not currently support FICON.

- Switch part number

View Menu Reference



This appendix discusses the following major topics:

- [Detail view](#) on page 230
- [Device ports view](#) on page 236
- [Devices view](#) on page 238
- [Portgrid view](#) on page 242
- [Ports view](#) on page 242
- [Summary view](#) on page 243
- [Switches view](#) on page 250
- [Topology view](#) on page 251

Introduction

The **View** menu lists the various Fabric Manager views. The sections that follow describe each view. You can use the **View** menu to navigate Fabric Manager just as you use the view selector. For more information on the navigation options, see [“Navigating with elements and views”](#) on page 67.

Detail view

Detail view provides detailed information about SAN elements. When you click an element in the **SAN Elements** tab and select **Detail** view, Fabric Manager displays a pane for each nested element. (That is, if you click a fabric, you see panes for each switch in the fabric; if you click a switch, you see panes for each card or port on the switch.) You can expand any item in the pane that includes two right angle brackets (>>). Click the item to expand it. Click the item again to collapse it.




My SAN detail

Each pane in **My SAN Detail** provides an **At-A-Glance overview** of the major categories of elements: **Fabrics**, **SwitchGroups**, and **PortGroups**. The information displayed in the overview depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for devices”](#) on page 221.

Each **At-A-Glance overview** pane includes a series of icons at the bottom. The icons in the bottom left corner of the pane represent the switch types (in the case of **SwitchGroups** and **Fabrics**) or port types (in the case of **PortGroups**) displayed in that element. One icon is displayed for each type of switch or port displayed. Place your pointer over the icon to display the number of that type of device.

The icons displayed in the bottom right corner of the **At-A-Glance overview** pane provide administrative options. [Table 36](#) describes each icon.

Table 36: At-a-glance overview administrative icons

Icon	Description
Events icon 	Opens Event view in a new Fabric Manager window for the appropriate element. (For instance, if you click the Events icon in the SwitchGroups pane, Fabric Manager selects SwitchGroups from the SAN Elements tab and opens Event view.) For more information, see “ Event view ” on page 238.
Display icon 	Opens the Edit View Options window for the appropriate element. For more information, see “ Edit view options windows ” on page 215.
Update icon 	Updates the information in the display pane.

Fabrics detail

Each pane in the **Fabrics Detail** view displays details about each fabric. The information displayed in the overview depends on the options that you configure with the **Edit** menu. For more information on view options, see “[Edit view options for summaries](#)” on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of the pane represent the switch types displayed in the fabric. One icon is displayed for each type of switch displayed in the fabric. Place your pointer over the icon to see how many switches of that type occur in the fabric.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 37](#) describes each icon.

Table 37: Fabrics detail icons








Icon	Description
Fabric Events icon 	Opens Event view in a new Fabric Manager window for the appropriate fabric. (For instance, if you click the events icon in the Switch X pane, Fabric Manager selects Switch X from the SAN Elements tab and opens Event view.) For more information, see “ Event view ” on page 238.
Zone Admin icon 	Opens the Zone Admin windows of Web Tools.
Name Server icon 	Opens the Name Server Table window of Web Tools.
Fabric Topology icon 	Opens Web Tools Topology view to show tables of data that display the routes that the data takes.

Table 37: Fabrics detail icons (Continued)

Icon	Description
Security Admin icon 	Opens the Security Admin window. For more information, see Chapter 11, “ Security Management ,” on page 131. Note: This icon is displayed only in the pane of a secure fabric.
Telnet to FCS icon 	Opens a telnet session to the FCS. For more information, see Chapter 11, “ Security Management ” on page 131. Note: This icon is displayed only in the pane of a secure fabric.
Update icon 	Updates the information in the display pane.






Miscellaneous fabric detail

Each pane in the **Detail** view of a given fabric displays details about a switch in the fabric. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see “[Edit view options for summaries](#)” on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the port types displayed in the switch. One icon is displayed for each type of port displayed in the switch. Place your pointer over the icon to see how many ports of that type occur in the switch.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 38](#) describes each icon.

Table 38: Miscellaneous fabric detail icons

Icon	Description
Switch Events icon 	Opens Event view for the switch in a new Fabric Manager window.
Admin View icon 	Opens the Switch Admin window of Web Tools.
Fabric Watch icon 	Opens the Fabric Watch window of Web Tools.
Telnet icon 	Opens a telnet session to the switch.
Update icon 	Updates the information in the display pane.


Miscellaneous switch detail

Each pane in the **Detail** view of a given switch displays details about a card or port in the switch. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see “[Edit view options for summaries](#)” on page 222.

For switches that use cards, each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the port types displayed in the switch. One icon is displayed for each type of port displayed in the switch. Place your pointer over the icon to see how many cards or ports of that type occur in the switch.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 39](#) describes each icon.

Table 39: Miscellaneous switch detail icon


Icon	Description
Update icon 	Updates the information in the display pane.

Miscellaneous card detail

Each pane in the **Detail** view of a given card displays details about a port in the card. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 40](#) presents and describes each icon.

Table 40: Miscellaneous card detail icon

Icon	Description
Update icon 	Updates the information in the display pane.





SwitchGroups detail

Each pane in the **SwitchGroups Detail** view displays details about a particular switch group. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the switch types displayed in the group. One icon is displayed for each type of switch displayed in the group. Place your pointer over the icon to see how many switches of that type occur in the group.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 41](#) describes each icon.

Table 41: Switch groups detail icons

Icon	Description
Group Events icon 	Opens Event view for the switch in a new Fabric Manager window.
Group Creation icon 	Opens the Edit Switch Group window. For more information on this window, see “Edit switch groups window” on page 200.
Group Exportation icon 	Opens the Export window. For more information on this window, see “Export window” on page 202.
Update icon 	Updates the information in the display pane.






Miscellaneous switch group detail

Each pane in the **Detail** view of a given switch group displays details about a switch in the group. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see “[Edit view options for summaries](#)” on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the port types displayed in the switch. One icon is displayed for each type of port displayed in the switch. Place your pointer over the icon to see how many ports of that type occur in the switch.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 42](#) presents and describes each icon.

Table 42: Miscellaneous switch group detail icons

Icon	Description
Switch Events icon 	Opens Event view for the switch in a new Fabric Manager window.
Admin View icon 	Opens the Switch Admin window of Web Tools.
Fabric Watch icon 	Opens the Fabric Watch window of Web Tools.
Telnet icon 	Opens a telnet session to the switch.
Update icon 	Updates the information in the display pane.




PortGroups detail

Each pane in the **PortGroups Detail** view displays details about a particular port group. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see “[Edit view options for summaries](#)” on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the port types displayed in the group. One icon is displayed for each type of port displayed in the port group. Place your pointer over the icon to see how many ports of that type occur in the group.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 43](#) presents and describes each icon.

Table 43: Port groups detail icons


Icon	Description
Group Creation icon 	Opens the Edit Port Group window. For more information on this window, see “Edit port groups window” on page 201.
Group Exportation icon 	Opens the Export window. For more information on this window, see “Export window” on page 202.
Update icon 	Updates the information in the display pane.

Miscellaneous port group detail

Each pane in the **Detail** view of a given port group displays details about a port in the group. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 44](#) presents and describes each icon.

Table 44: Miscellaneous port group detail icon

Icon	Description
Update icon 	Updates the information in the display pane.

Device ports view

The Device Ports view lists the device ports attached to a given element in the SAN Elements tab. The properties that the Device Ports view displays are shown in [Table 45](#).

Table 45: Device ports view display

Column	Description
Domain ID	Identifies the domain ID.
Port	The device and the port on that device.
Port ID	The port ID in hexadecimal format.
Port Type	The port type.
Fabric Port WWN	The fabric port World Wide name.
Device Port WWN	The device port World Wide name.
Device Node WWN	The device node World Wide name.
Device Name	The device name.
FC4 Type	Specifies the FC4 type.
COS	The class of service.
Port IP Address	Lists the port IP address.
Hard Address	The hard address.
Manufacturer	The device's manufacturer.
Sequence Number	The sequence number.
Device Type Number	The device type number.
Model	The model number.
Manufacturing Plant	The plant that manufactured the device.
Tag	The device tag.
Capability	The device capability.

Devices view

Devices view lists the devices attached to a given element in the **SAN Elements** tab. [Table 46](#) describes the properties that **Devices** view displays.

Table 46: Devices view display

Column	Description
Device Node WWN	The World Wide Name of the device.
SCSI Inquiry Name	The SCSI inquiry name of the device. The SCSI inquiry name serves as the symbolic SCSI name of the device. If the device does not have a SCSI inquiry name, nothing is displayed in this field.
Manufacturer	The manufacturer of FDMI-capable devices.
Serial number	The serial number of FDMI-capable HBAs.
Model	The model descriptor of FDMI-capable HBAs.
Model Description	A description of an FDMI-capable device.
Hardware	Internal identifier of the FDMI-capable HBA manufacturer.
Driver	The driver that the host runs for that HBA.
ROM version	The ROM version.
Firmware	The firmware that the HBA runs.
OS name and version	The operating system of the device on which the HBA is installed.
Capability	The capability of the device.

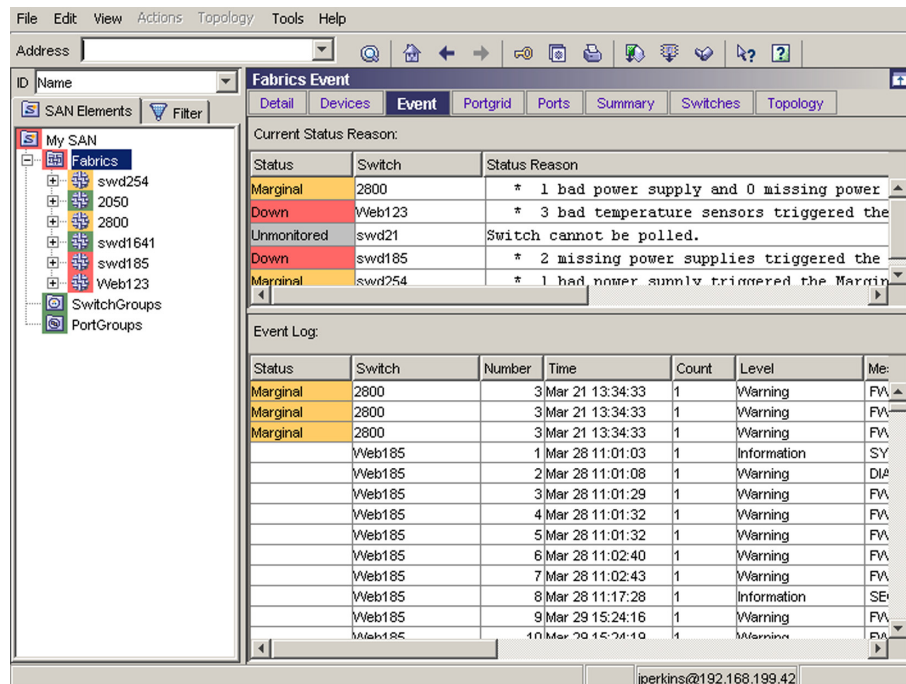
Event view

Event view consists of two sections:

- Current Status Reason
- Event Log

Event view is displayed in [Figure 40](#).

Figure 40: Event view



The **Current Status Reason** section provides the following information about each switch displayed:

- The status of the switch
- The name of the switch
- The reason for the state of the switch

The **Event Log** section lists log entries and provides information about each entry. [Table 47](#) describes the information displayed in each entry.

Table 47: Event view log entry display

Property	Description
Status	The status of the switch.
Switch	The name of the switch.
Number	The number of the event. Events are numbered sequentially based on the time that they occurred.
Time	The time that the event occurred.
Count	The number of consecutive occurrences of the same event.
Level	The severity level of the event.
Message	The description of the event that occurred. Fabric Manager takes this description from the error log of the switch.

Table 47: Event view log entry display (Continued)

Property	Description
EventSrc	<p data-bbox="299 281 1185 309">Indicates the event source as a daemon or library module. The possible event sources are:</p> <ul style="list-style-type: none"> <li data-bbox="299 329 442 357">■ BLADE <li data-bbox="299 374 449 402">■ BLOOM <li data-bbox="299 420 421 447">■ DIAG <li data-bbox="299 465 392 493">■ EM <li data-bbox="299 510 464 538">■ ERRLOG <li data-bbox="299 555 449 583">■ FABRIC <li data-bbox="299 600 435 628">■ FICON <hr/> <p data-bbox="299 694 792 722">Note: HP does not currently support FICON.</p> <hr/> <ul style="list-style-type: none"> <li data-bbox="299 789 435 817">■ FSSME <li data-bbox="299 835 392 862">■ FW <li data-bbox="299 880 414 907">■ HAM <li data-bbox="299 925 528 953">■ HAMKERNEL <li data-bbox="299 970 392 998">■ MS <li data-bbox="299 1015 485 1043">■ PD TRACE <li data-bbox="299 1060 499 1088">■ PORTSWAP <li data-bbox="299 1105 406 1133">■ RCS <li data-bbox="299 1150 428 1178">■ SULIB <li data-bbox="299 1196 421 1223">■ SYSC <li data-bbox="299 1241 442 1269">■ TRACK <li data-bbox="299 1286 385 1314">■ TS <li data-bbox="299 1331 421 1359">■ ZONE <li data-bbox="299 1376 421 1404">■ kSWD <li data-bbox="299 1421 421 1449">■ syslog

The quantity of switch and log information depends on the item that you choose from the **SAN Elements** tab.

Portgrid view

Portgrid view displays which ports connect to which devices for switches.

Portgrid view works only when you click **My SAN**, **Fabrics**, or a specific fabric or switch in the **SAN Elements** tab. If a device has a SCSI Inquiry Name, **Portgrid** view displays it. If not, **Portgrid** view displays the WWN. For loop devices, **Portgrid** view shows “loop” and the number of devices in the loop.

Ports view

Ports view provides detailed information on every port in the element you select from the **SAN Elements** tab. The view includes status information. The following events (and only these events) change the port status to down:

- Diag_Flt
- Lock_Ref
- Port_Flt
- No_Sync
- Laser_Flt
- No_Port

The following events (and only these events) change the port status to marginal:

- No_Light
- Disabled
- Testing

The following events (and only these events) change the port status to healthy:

- In_Sync
- No_Module
- No_Card
- Online

[Table 48](#) describes the details displayed in **Ports** view.

Table 48: Ports view display

Property	Description
Fabric	Shows the name of the fabric to which the port belongs.
Switch	Shows the name of the switch to which the port belongs.
ID	Shows the port ID of the port.
Status	Shows the status of the port.
Light	Shows the LED state of the port.
State	Shows the state of the port module.
Type	Shows the port type.
Speed	Shows the speed of the port in Gbit/sec.
Port Module	Shows whether the port is copper or fiber.
Card Number	Identifies the card in a dual-switch chassis to which the port belongs.
Port Number	Shows the number of the port in the port card (0–15).
User Port Number	Shows the number of the port in the switch (variable).
WWN	Shows the WWN of the port.
Name	Displays the name that you assigned to the switch with Fabric Manager. For more information, see “Renaming a port” on page 63.
Responding	Indicates the current responding state of the HTTP session.

Summary view

Summary view provides high-level information about SAN elements. When you click an element in the **SAN Elements** tab and select **Summary** view, Fabric Manager displays a pane for each nested element. (That is, if you click a fabric, you see panes for each switch in the fabric; if you click a switch, you see panes for each card or port on the switch.) You can expand any item in the pane that includes two right angle brackets (>>). Click the item to expand it. Click the item again to collapse it.




My SAN summary

Each pane in **My SAN Summary** provides an **At-A-Glance overview** of the major categories of elements: **Fabrics**, **SwitchGroups**, and **PortGroups**. The information displayed in the overview depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for devices”](#) on page 221.

Each **At-A-Glance overview** pane includes a series of icons at the bottom. The icons in the bottom left corner of the pane represent the switch types (in the case of **SwitchGroups** and **Fabrics**) or port types (in the case of **PortGroups**) displayed in that element. One icon is displayed for each type of switch or port displayed. Place your pointer over the icon to display the number of the switch or port that occurs in that element.

The icons displayed in the bottom right corner of the **At-A-Glance overview** pane provide administrative options. [Table 49](#) describes each icon.

Table 49: At-a-glance overview administrative icons

Icon	Description
Events icon 	Opens Event view in a new Fabric Manager window for the appropriate element. (For instance, if you click the events icon in the SwitchGroups pane, Fabric Manager selects SwitchGroups from the SAN Elements tab and opens Event view.) For more information, see “Event view” on page 238.
Display icon 	Opens the Edit View Options window for the appropriate element. For more information, see “Edit view options windows” on page 215.
Update icon 	Updates the information in the display pane.








Fabrics summary

Each pane in the **Fabrics Summary** view displays details about each fabric. The information displayed in the overview depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of the pane represent the switch types in the fabric. One icon is displayed for each type of switch in the fabric. Place your pointer over the icon to see how many switches of that type occur in the fabric.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 50](#) describes each icon.

Table 50: Fabric detail icons

Icon	Description
Fabric Events icon 	Opens Event view in a new Fabric Manager window for the appropriate fabric. (For instance, if you click the events icon in the Switch X pane, Fabric Manager selects Switch X from the SAN Elements tab and opens Event view.) For more information, see “Event view” on page 238.
Zone Admin icon 	Opens the Zone Admin windows of Web Tools.
Name Server icon 	Opens the Name Server Table window of Web Tools.
Fabric Topology icon 	Opens Web Tools Topology view to show tables of data that display the routes that the data takes.
Security Admin icon 	Opens the Security Admin window. For more information, see Chapter 11, “Security Management,” on page 131. Note: This icon is displayed only in the pane of a secure fabric.
Telnet to FCS icon 	Opens a telnet session to the FCS. For more information, see Chapter 11, “Security Management,” on page 131. Note: This icon is displayed only in the pane of a secure fabric.
Update icon 	Updates the information in the display pane.






Miscellaneous fabric summary

Each pane in the **Summary** view of a given fabric displays summary information about a switch in the fabric. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the port types in the switch. One icon displays for each type of port in the switch. Place your pointer over the icon to see how many ports of that type occur in the switch.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 51](#) describes each icon.

Table 51: Miscellaneous fabric details icons

Icon	Description
Switch Events icon 	Opens Event view for the switch in a new Fabric Manager window.
Admin View icon 	Opens the Switch Admin window of Web Tools.
Fabric Watch icon 	Opens the Fabric Watch window of Web Tools.
Telnet icon 	Opens a telnet session to the switch.
Update icon 	Updates the information in the display pane.


Miscellaneous switch summary

Each pane in the **Summary** view of a given switch displays summary information about a card or port in the switch. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see “[Edit view options for summaries](#)” on page 222.

For switches that use cards, each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the card or port types in the switch. One icon displays for each type of port in the switch. Place your pointer over the icon to see how many cards or ports of that type occur in the switch.

The icons displayed in the bottom right corner of the pane provide administrative options. [Table 52](#) describes each icon.

Table 52: Miscellaneous switch detail icon


Icon	Description
Update icon 	Updates the information in the display pane.

Miscellaneous card summary

Each pane in the **Summary** view of a given card displays summary information about a port in the card. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

The icons in the bottom right corner of the pane provide administrative options. [Table 53](#) presents and describes each icon.

Table 53: Miscellaneous card detail icon

Icon	Description
Update icon 	Updates the information in the display pane.





SwitchGroups summary

Each pane in the **SwitchGroups Summary** view displays summary information about a particular switch group. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the switch types in the group. One icon is displayed for each type of switch in the group. Place your pointer over the icon to see how many cards or ports of that type occur in the switch.

The icons in the bottom right corner of the pane provide administrative options. [Table 54](#) presents and describes each icon.

Table 54: Switch groups detail icons

Icon	Description
Group Events icon 	Opens Event view for the switch in a new Fabric Manager window.
Group Creation icon 	Opens the Edit Switch Group window. For more information on this window, see “Edit switch groups window” on page 200.
Group Exportation icon 	Opens the Export window. For more information on this window, see “Export window” on page 202.
Update icon 	Updates the information in the display pane.






Miscellaneous switch group summary

Each pane in the **Summary** view of a given switch group displays summary information about a switch in the group. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the port types in the switch. One icon displays for each type of port in the switch. Place your pointer over the icon to see how many ports of that type occur in the switch.

The icons in the bottom right corner of the pane provide administrative options. [Table 55](#) describes each icon.

Table 55: Miscellaneous switch group detail icons

Icon	Description
Switch Events icon 	Opens Event view for the switch in a new Fabric Manager window.
Admin View icon 	Opens the Switch Admin window of Web Tools.
Fabric Watch icon 	Opens the Fabric Watch window of Web Tools.
Telnet icon 	Opens a telnet session to the switch.
Update icon 	Updates the information in the display pane.




PortGroups summary

Each pane in the **PortGroups Summary** view displays summary information about a particular port group. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

Each pane includes a series of icons at the bottom. The icons in the bottom left corner of each pane represent the port types in the group. One icon displays for each type of port in the port group. Place your pointer over the icon to see how many ports of that type occur in the group.

The icons in the bottom right corner of the pane provide administrative options. [Table 56](#) presents and describes each icon.

Table 56: PortGroups detail icons


Icon	Description
Group Creation icon 	Opens the Edit Port Group window. For more information on this window, see “Edit port groups window” on page 201.
Group Exportation icon 	Opens the Export window. For more information on this window, see “Export window” on page 202.
Update icon 	Updates the information in the display pane.

Miscellaneous port group summary

Each pane in the **Detail** view of a given port group displays details about a port in the group. The information displayed depends on the options that you configure with the **Edit** menu. For more information on view options, see [“Edit view options for summaries”](#) on page 222.

The icons in the bottom right corner of the pane provide administrative options. [Table 57](#) presents and describes each icon.

Table 57: Miscellaneous port group detail icon

Icon	Description
Update icon 	Updates the information in the display pane.

Switches view

[Table 58](#) describes the information that **Switches** view displays about switches.

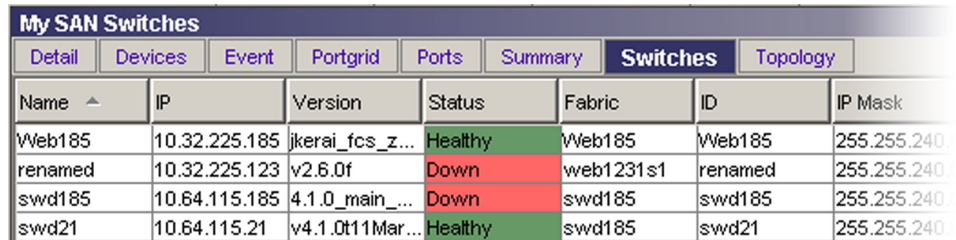
Table 58: Switches view display

Property	Description
Name	The name of the switch.
IP	The IP address of the switch.
Version	The firmware version that the switch runs.
Status	The status of the switch.
Fabric	The fabric to which the switch connects.
ID	The ID that you choose from the ID pull-down menu. For more, see “Selecting identity” on page 66.
IP Mask	The subnet mask of the switch.
Gateway	The gateway of the switch.
FCIP	The FCIP address of the switch, if configured.
FC Mask	The FC mask of the switch, if configured.
Responding	Displays <code>true</code> if the switch responds to Fabric Manager and <code>false</code> if it does not.
Role	The role that the switch plays in the fabric (principal or subordinate).
Domain ID	The domain ID of the switch.
WWN	The WWN of the switch.
State	Displays whether the switch is enabled or disabled.
Is Core	Displays whether the switch is a core switch or an edge switch. For more information, see “Designating a switch as a core switch” on page 77.
Port Count	The number of ports in the switch.
Free Ports	The number of unused and available ports in the switch.
ISL Count	The number of ISLs that connect to the switch.
Secure Mode	Displays whether Secure Mode is enabled or disabled.
Using FCIP	Specifies whether or not the switch is configured for FCIP.
Have UserID	Specifies whether or not user information has been added to a switch. Provides fabric login (flogi) status.
Has Certificate	Specifies whether or not a security certificate is installed.
Trunk Count	The number of trunks that connect to the switch.
Trunked Port Count	The number of ports in each trunk that connects to the switch.

Table 58: Switches view display (Continued)

Property	Description
Device Count	The number of devices that connect to the switch.
IDID	Specifies whether Insistent Domain ID (IDID) Mode is enabled or disabled. A value of <code>true</code> indicates enabled; a value of <code>false</code> indicates disabled.
Type Number	Displays a string that represents switch type. These values come from the switch RNID database and are available for FICON capable switches.
Model	The switch model number.
Manufacturer	The switch's manufacturer.
Switch Type	The switch type.
Switch Part Number	The chassis part number for applicable switches.
Serial Number	The switch serial number.

Figure 41 shows the **Switches** view when you click **My SAN** in the **SAN Elements** tab.

Figure 41: Switches view












My SAN Switches						
Detail	Devices	Event	Portgrid	Ports	Summary	Switches
Name	IP	Version	Status	Fabric	ID	IP Mask
Web185	10.32.225.185	jkerai_fcs_z...	Healthy	Web185	Web185	255.255.240.0
renamed	10.32.225.123	v2.6.0f	Down	web1231s1	renamed	255.255.240.0
swd185	10.64.115.185	4.1.0_main_...	Down	swd185	swd185	255.255.240.0
swd21	10.64.115.21	v4.1.0t11Mar...	Healthy	swd185	swd21	255.255.240.0

Topology view

Topology view provides a graphical representation of the elements that Fabric Manager monitors and the connections between and within them. When you open **Topology** view a number of icons are displayed at the top of your **Fabric Manager** window. Table 59 lists and describes these icons.

Note: **Topology** view may take a considerable amount of time to open. **Topology** view options may also respond slowly.

Table 59: Topology view icons

Icon	Description
Pan icon 	Lets you click and drag the Topology view to pan up, down, left, and right to see different portions of the view.
Select icon 	Lets you move nodes in Topology view.
Zoom in rectangular icon 	Lets you click and drag to zoom in on a particular rectangular region of the topology.
Zoom in icon 	Click to zoom in.
Zoom out icon 	Click to zoom out.
Fit to view icon 	Click to fit the entire topology in your Fabric Manager window.
Overview icon 	Opens a new window that displays the entire topology in miniature.
SnapShot icon 	Takes a screen shot of your topology graph that you can save in .png format.
Straight Link Style icon 	Arranges links so they connect in a straight line from one element to another.
Orthogonal Link Style icon 	Arranges links in horizontal and vertical lines, with right angles, to connect elements.

Topology view provides three different layout options: circular, core-edge, and tree. [Table 60](#) describes these layouts.

Table 60: Topology view layouts








Layout	Description
Circular	Arranges the switches and nodes of a fabric into a circle.
Core-edge	Separates core switches, edge switches, and nodes.
Tree	Organizes the fabric hierarchically.

Each **Topology** view consists of nested panes and element icons. Element icons that contain other elements (for instance, as a fabric contains switches) include an expand (+) icon in the top left corner. If you expand the icon, the icon becomes a pane that displays the nested icons. Panes include a collapse icon (-) in the top left corner so you can hide the subordinate icons.

Links

The lines that connect icons in **Topology** view represent different varieties of links in the fabrics. [Table 61](#) shows the various link images and explains the meaning of each.

Table 61: Topology view link images

Image		Description
	Bundled links	Represents all links between two switches to reduce clutter in the topology display. Double-click the bundle to expand it.
	Expanded bundle	Shows the individual links that form a bundle. Double-click the expanded bundle to collapse the links into a bundle.
	1 Gbit/sec link	Represents a 1 Gbit/sec link between two switches. When you enable ISL Checking, this link is displayed as red, yellow, or green, based on the ISL Checking status of the link. For more information, see "ISL changes and topology view" on page 154.
	2 Gbit/sec link	Represents a 2 Gbit/sec link between two switches. When you enable ISL Checking, this link is displayed as red, yellow, or green, based on the ISL Checking status of the link. For more information, see "ISL changes and topology view" on page 154.
	Trunked links	Represents a trunk between two switches. This link is displayed as red, yellow, or green, based on the ISL Checking status of the link.
	Device groups	Represents the devices that connect to a switch. Double-click the device group to open a window that displays the devices in table format.
	Device links	Represents the link between a switch and the devices that connect to it.

Actions Menu Reference



This appendix discusses the following major topics:

- [Fabric actions](#) on page 256
- [Switch actions](#) on page 260
- [Port actions](#) on page 261

Introduction

The **Actions** menu displays tasks that you can perform with Fabric Manager. You can access items in this menu only in the following cases:

- When you click a specific fabric in the **SAN Elements** tab
- When you click a specific switch in the **SAN Elements** tab
- When you click a switchgroup node in the **SAN Elements** tab
- When you click a switchgroup in the **SAN Elements** tab
- When you click a specific port in the **SAN Elements** tab
- When you click a portgroup node in the **SAN Elements** tab
- When you click a portgroup in the **SAN Elements** tab
- When you click a specific card in the **SAN Elements** tab (for switches that support cards)

Fabric actions

When you click a fabric in the **SAN Elements** tab and open the **Actions** menu, the menu provides a series of fabric-wide tasks that you can perform. [Table 62](#) describes the actions.

Table 62: Fabric actions

Action	Description
Events	Opens the Fabric Manager Event Log.
Telnet to FCS...	<p>Telnets to the FCS of a secure fabric. If you click a non-secure fabric in the SAN Elements tab, you cannot access this action; it displays as Telnet...</p> <hr/> <p>Note: This option is displayed only when you click a secure fabric in the SAN Elements tab.</p> <hr/>
Security...	<p>Opens the Security Admin window to administer security. For more information, see "Security admin window" on page 258.</p> <hr/> <p>Note: This option is displayed only when you click a secure fabric in the SAN Elements tab.</p> <hr/>

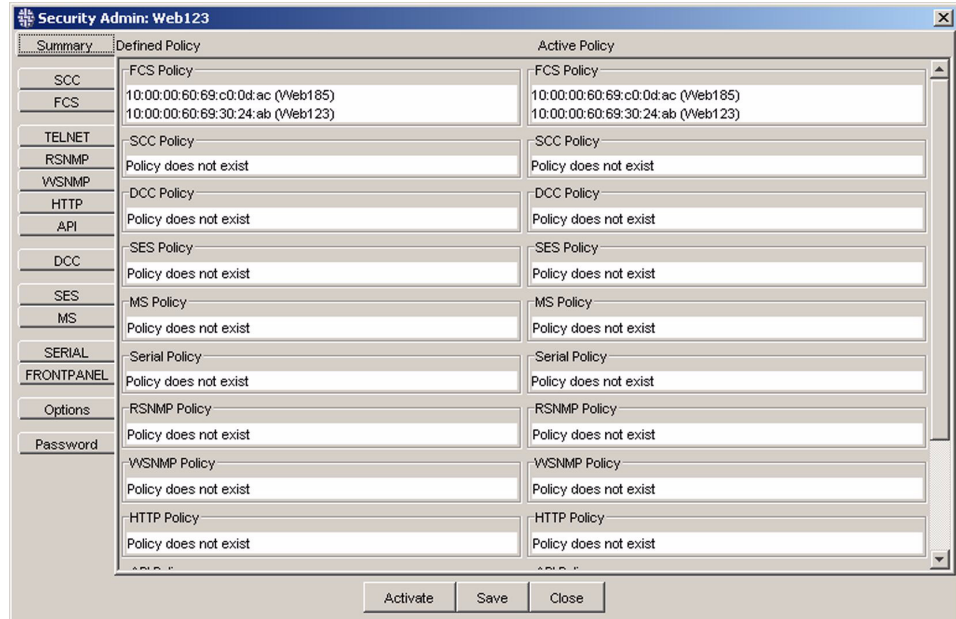
Table 62: Fabric actions (Continued)

Action	Description
Zone Admin...	Opens the Zone Administration window of Web Tools.
Name Server...	Opens the Name Server Table window in Web Tools.
ISL	Opens the ISL submenu to initiate or restamp ISL checking. For more information, see "ISL submenu" on page 259.
Set Time...	Opens the Time dialog box to update the time and date settings on the switches in the fabric. To configure the time, place your cursor in any part of the Time field and use the up arrow or down arrow to iterate the field; then click OK .
Refresh FDMI Info	Refreshes FDMI information. Note: This option is displayed only when FDMI capable HBAs are connected to switches running Fabric OS versions that support FDMI.
Backup...	Opens the Backup fabric configuration-Select a folder window to create a backup file that contains the following information: <ul style="list-style-type: none"> ■ The configuration file of every switch in the fabric ■ The license keys for every switch in the fabric ■ A list of switches that belong to the fabric ■ An ISL stamp ■ The Backup action does not store the current ISL stamp. It creates a stamp of the ISLs as they are displayed <i>at the moment of the backup</i>. ■ All zone definitions (and notes the active zone) ■ Which firmware version each switch runs ■ Name server information
Diff with Backup...	Opens the Diff fabric configuration with backup window to compare a fabric to a backup file and lists discrepancies.
Fabric Checking	Activates or deactivates Fabric Checking. A dark blue ring is displayed around the fabric icon to indicate that you enabled Fabric Checking; a check mark is displayed next to the action in the Actions menu.
Refresh	Refreshes the Fabric Manager display to reflect any status changes.
Delete	Deletes the selected fabric.
Rename	Allows you to rename the selected fabric.

Security admin window

The **Security Admin** window consists of tabs that let you view and configure the various security policies. The **Security Admin** window is shown in [Figure 42](#).

Figure 42: Security admin window



[Table 63](#) describes the tabs and buttons in the **Security Admin** window.

Table 63: Security admin window objects

Object	Description
Summary tab	Presents a column of defined security policies and a column of active security policies.
SCC tab	The components of this tab let you add a switch to a secure fabric. For more information, see “Adding a switch to a secure fabric” on page 134.
FCS tab	The components of this tab show each switch that serves as a Fabric Configuration Server (FCS) and lets you add or remove switches from the list.
TELNET tab	The components of this tab let you grant access to individual switches to run telnet in a secure fabric.

Table 63: Security admin window objects (Continued)

Object	Description
RSNMP tab	The components of this tab let you grant access to individual switches to run RSNMP in a secure fabric.
WSNMP tab	The components of this tab let you grant access to individual switches to run WSNMP in a secure fabric.
HTTP tab	The components of this tab let you grant access to individual switches to run HTTP in a secure fabric.
API tab	The components of this tab let you grant access to individual switches to run API in a secure fabric.
DCC tab	The components of this tab let you create a security policy. For more information, see “Configuring DCC policy options” on page 140.
MS tab	The components of this tab let you grant access to individual switches to run Management Server in a secure fabric.
SERIAL tab	The components of this tab let you grant access to individual switches to accept a serial connection in a secure fabric.
FRONTPANEL tab	The components of this tab let you grant access to individual switches to accept configuration changes from the front panel in a secure fabric.
Options tab	The field in this tab lets you enable or disable No Node WWN Zoning.
Password tab	The components of this tab let you change passwords for FCS switches and non-FCS switches.
Activate button	Activates the changes that you made to the components of the Security Admin window tabs.
Save button	Saves the changes that you made to the components of the Security Admin window tabs but does not apply them.
Close button	Closes the Security Admin window.

ISL submenu

The **ISL** submenu lets you initiate or restamp ISL checking. [Table 64](#) describes the options displayed in the **ISL** submenu.

Table 64: ISL submenu options

Option	Description
ISL Checking	Enables ISL Checking. For more information on this topic, see Chapter 13, “ ISL Checking ,” on page 149.
Restamp	Resets the ISL stamp to which ISL Checking compares the fabric. For more information on this topic, see “ Stamp and restamp ” on page 152.

Switch actions

When you click a switch in the **SAN Elements** tab and open the **Actions** menu, the menu provides a series of switch-wide tasks that you can perform. [Table 65](#) describes the actions.

Table 65: Switch actions

Action	Description
Events	Opens the Events View in Fabric Manager.
Switch View	Opens the Switch View window of Web Tools.
Admin...	Opens the Switch Admin window of Web Tools.
Fabric Watch...	Opens the Fabric Watch window of Web Tools.
Telnet	Opens a telnet session to the switch.
Close Telnet	Closes a telnet session to the switch. Note: This option is not applicable to switches that run v4.1.x firmware.
Disable and Enable	Disables or enables the switch.
Core Switch	Labels a switch as a core switch. Note: This action affects the location of the switch in Topology view for Core Edge layouts.
Delete	Deletes the switch.
Rename	Allows you to rename the switch.

Port actions

When you click a port in the **SAN Elements** tab and open the **Actions** menu, the menu provides port-wide tasks that you can perform. [Table 66](#) lists and describes the actions.

Table 66: Port actions

Action	Description
Disable and Enable	Disables or enables the port.

Topology Menu Reference



The **Topology** menu provides options to help you use and customize Topology view. You can access the **Topology** menu only after you open **Topology** view. [Table 67](#) lists and describes **Topology** menu options.

Note: Fabric size affects **Topology** view response speed.

Table 67: Topology menu options

Option	Description
Layout	Opens the Layout submenu to select a layout or clear any changes you made to the layout. For more information on Topology view layouts, see “ Topology view ” on page 251.
Links	Opens the Links submenu to <ul style="list-style-type: none">■ Expand all links■ Collapse all links■ Orthogonal link style■ Straight link style
Overview	Opens a new window that shows the entire topology in miniature.
Snapshot	Takes a snapshot of your current topology so you can compare a later topology to this baseline.

Tools Menu Reference



This appendix discusses the following major topics:

- [Reboot submenu](#) on page 267
- [Config submenu](#) on page 267
- [Licensing submenu](#) on page 268

Introduction

The **Tools** menu serves as a toolbox of mini-applications to help you perform a variety of tasks. [Table 68](#) describes the options in the **Tools** menu.

Table 68: Tools menu options

Option	Description
Firmware download to switches...	Opens the Firmware download to switches window. For more information on how to download firmware to switches with Fabric Manager, see Chapter 12, " Firmware Download ," on page 145.
Firmware download to HBAs...	Opens the Firmware download to HBAs window. For more information on how to download firmware to HBAs with Fabric Manager, see Chapter 19, " FDML-Capable HBA Firmware Download ," on page 185.
Reboot	Opens the Reboot submenu to configure or execute a sequenced reboot. For more information, see " Reboot submenu " on page 267.
Config	Opens the Config submenu to save a baseline configuration or to compare configurations. For more information, see " Config submenu " on page 267.
Licensing	Opens the Licensing submenu to manage software licenses. For more information, see " Licensing submenu " on page 268.
Fabric Merge...	Opens the Fabric Merge Check dialog box to verify that you can merge two fabrics successfully. For more information, see " Checking fabrics " on page 162.
Subnet scan...	Opens the Subnet scan dialog box to discover available fabrics.
Call Home	Opens the Call Home window. For more information, see Chapter 10, " Call Home ," on page 125.

Reboot submenu

The **Reboot** submenu helps you prepare and execute a sequenced reboot. [Table 69](#) describes the options in this menu.

Table 69: Reboot submenu options

Option	Description
Create Reboot Sequence...	Opens the Create or change reboot groups and sequence window to make or edit a reboot group. For more information on how to create and change reboot groups, see Chapter 18, " Sequenced Reboot ," on page 179.
Sequence Reboot...	Opens the Sequenced Reboot window to execute a sequenced reboot. For more information, see Chapter 18, " Sequenced Reboot ," on page 179.

Config submenu

The **Config** submenu provides options that let you save, download, and compare configuration files. [Table 70](#) describes the options in this menu.

Table 70: Configuration submenu options

Option	Description
Save Baseline...	Opens the Save Baseline -- Configuration Template Selection dialog box so you can begin to save the configuration file of a switch to a server. For more information about how to save a baseline, see " Saving a baseline configuration to a file " on page 165.
Compare/Download From File	Opens the Compare/Download from File -- Select Baseline Configuration window to choose a file to compare or download. For more information on comparing and downloading configurations, see Chapter 16, " Comparing Configurations ," on page 163.
Compare/Download From Switch	Opens the Compare/Download from Switch -- Source Configuration Selection window to select a switch so you can compare to the configuration of that switch or download the configuration of that switch. For more information on comparing and downloading configurations, see Chapter 16, " Comparing Configurations ," on page 163.

Licensing submenu

The **Licensing** submenu provides options that let you manage licenses with Fabric Manager. [Table 71](#) describes the options in this menu.

Table 71: Licensing submenu options

Option	Description
Import from File...	Opens the Import License -- Select license file dialog box to import license keys from a file that you can apply to one or more switches. For more information on how to import a license file, see "Importing and exporting license keys" on page 92.
Load from Switch...	Opens the License Admin -- Switch Selection window. For more information on how to load licenses from a switch, see Chapter 7, "Licensing," on page 91.
Generate Licenses...	Opens the Create License Request -- Select transaction key file or saved request window to obtain licenses and later apply them to switches.
Load Generated Licenses...	Opens the License Admin -- Switch Selection window to open previously-saved license files which you can then download to switches.

Help Menu Reference



The **Help** menu provides access to information about Fabric Manager. [Table 72](#) describes the options displayed in the **Help** menu.

Table 72: Help menu options

Option	Description
Help...	Opens Fabric Manager Help .
Context Help...	Creates a pointer to provide help about any portion of Fabric Manager that you click.
Status Legend...	Displays the Fabric Manager status legend.
About...	Provides information about your version of Fabric Manager.
Register...	Opens Fabric Manager Registration dialog box. For details, see “Registering Fabric Manager” on page 46.

Zoning Reference



This appendix discusses the following major topics:

- [File menu](#) on page 273
- [Edit menu](#) on page 273
- [View menu](#) on page 274
- [Actions menu](#) on page 275
- [Alias tab](#) on page 276
- [Zone tab](#) on page 278
- [QuickLoop tab](#) on page 280
- [Fabric assist tab](#) on page 282
- [Config tab](#) on page 284

Introduction

This reference provides information about Zoning fields. [Table 73](#) describes the components of the **Zone Administration** window.

Note: Zoning interfaces vary by firmware. Your interface may display differently.

Table 73: Zone administration window components

Component	Description
File menu	Provides administrative options. For more information on the items in this menu, see "File menu" on page 273.
Edit menu	Lets you add, delete, replace, and search for zone member identifiers. For more information, see "Edit menu" on page 273.
View menu	Lets you choose a Zoning display. For more information, see "View menu" on page 274.
Actions menu	Lets you enable, disable, and save Zoning configurations. For more information, see "Actions menu" on page 275.
Zoning type display	Occurs beneath the File menu and displays the Zoning type that you chose from the View menu.
Enabled Config display	Shows the enabled Zoning configuration.
Zoning configuration tabs	Let you configure Zoning. For more information, see the tab-specific sections that follow: <ul style="list-style-type: none">■ "" on page 276■ "Zone tab" on page 278■ "Quickloop tab" on page 280■ "Fabric assist tab" on page 282■ "Config tab" on page 284

File menu

[Table 74](#) describes the options displayed in the **File** menu of the **Zone Administration** window.

Table 74: File menu options

Option	Description
Print Summary	Select to print a Zoning configuration report. A window displays both the effective configuration and the defined Zoning configuration, if one exists.
Close	Select to close the Zone Administration window.

Edit menu

[Table 75](#) describes the options displayed in the **Edit** menu of the **Zone Administration** window.

Table 75: Edit menu options

Option	Description
Add WWN...	Select to add a WWN across aliases, zones, or Fabric Assist zones. A dialog box displays; enter the WWN number.
Delete WWN...	Select to delete a WWN across aliases, zones, or Fabric Assist zones. A dialog box displays; enter the WWN number.
Replace WWN...	Select to replace one WWN with another. A dialog box displays; enter first the WWN number to be replaced, and then the new WWN number.
Search Member...	<p>Select to search for a member of a zone. A dialog box displays. Enter any element that occurs in the Member Selection List: Domain Name, Port name, Port ID, WWN, Device, Zone Name, or Alias Name.</p> <p>Narrow searches by checking one or more of the following boxes:</p> <ul style="list-style-type: none"> ■ Match case ■ Match whole words only ■ Wrap around <p>Check the Wrap around box if you want the search engine to restart after it hits the end of the string. Leave unchecked if you want the search engine to stop once it hits the end of the string; a message displays to indicate the search is complete.</p>

View menu

The options available in the **View** menu of the **Zone Administration** window are described in [Table 76](#).

Table 76: View menu options

Option	Description
Mixed Zoning	Use the Mixed Zoning option when you want to include various objects as member of an alias, zone, or configuration file.
Port Zoning	Select the Port Zoning option when you want to include only ports in a group. Grouping zones by port alone constitutes hard Zoning.
WWN Zoning	Select the WWN Zoning option when you want to zone by World Wide Names. Grouping zones by WWN alone constitutes hard Zoning.
AL_PA Zoning	Select the AL_PA Zoning option when you want to create or manage a zone of devices.
Refresh Zoning	Select the Refresh Zoning option to refresh the Zoning database. This overwrites any unsaved Zoning database changes you have made.
Refresh Fabric	Select the Refresh Fabric option to display the latest fabric changes.

Actions menu

The options available in the **Actions** menu of the **Zone Administration** window are described in [Table 77](#).

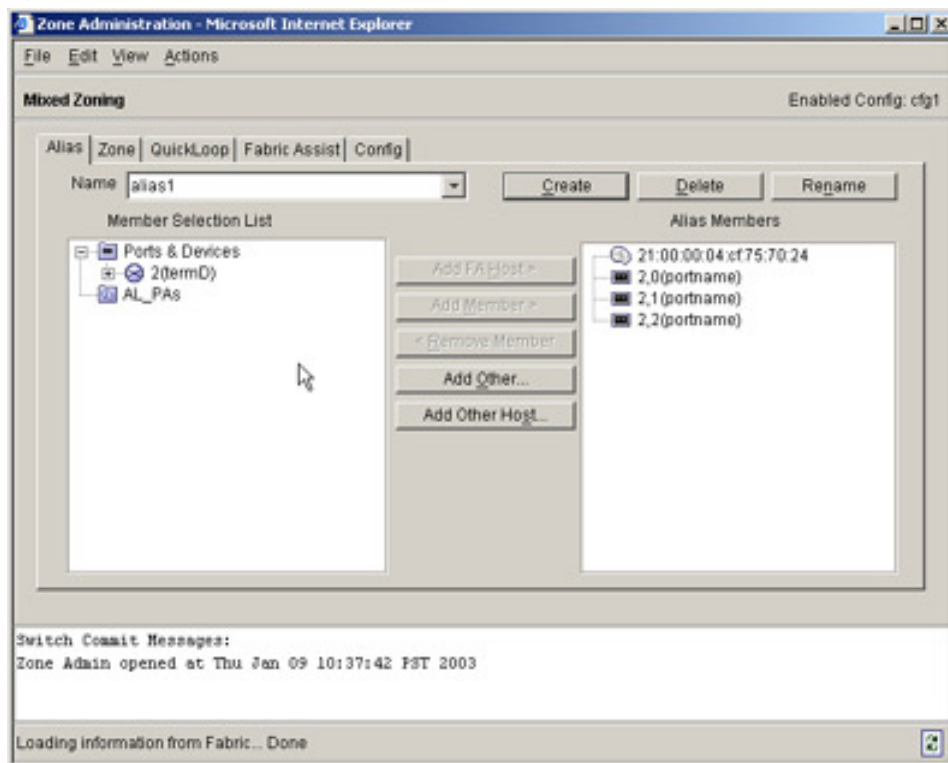
Table 77: Actions menu options

Menu Item	Description
Enable Config	Select to save and enable the configuration selected from the Config tab Name field. This command also saves all other configurations in the Zoning database.
Disable Zoning	Select to disable the configuration currently enabled. A dialog box provides a warning before disabling.
Save Config Only	Select to save all defined Zoning configurations. The saved changes apply only to the defined configurations. Changes can be made to a configuration currently enabled; changes are not displayed until the configuration is disabled and re-enabled.
Clear All	Select to delete all aliases, zones, Fabric Assist zones, and configurations; the cleared configuration is saved. Any enabled configuration is disabled.

Alias tab

Use the **Alias** tab to create, modify, rename, or delete aliases in the Zoning database. An example of the **Alias** tab is shown in [Figure 43](#).

Figure 43: Alias tab in the zone administration window



Alias tab descriptions

[Table 78](#) lists and describes the components of the **Alias** tab.

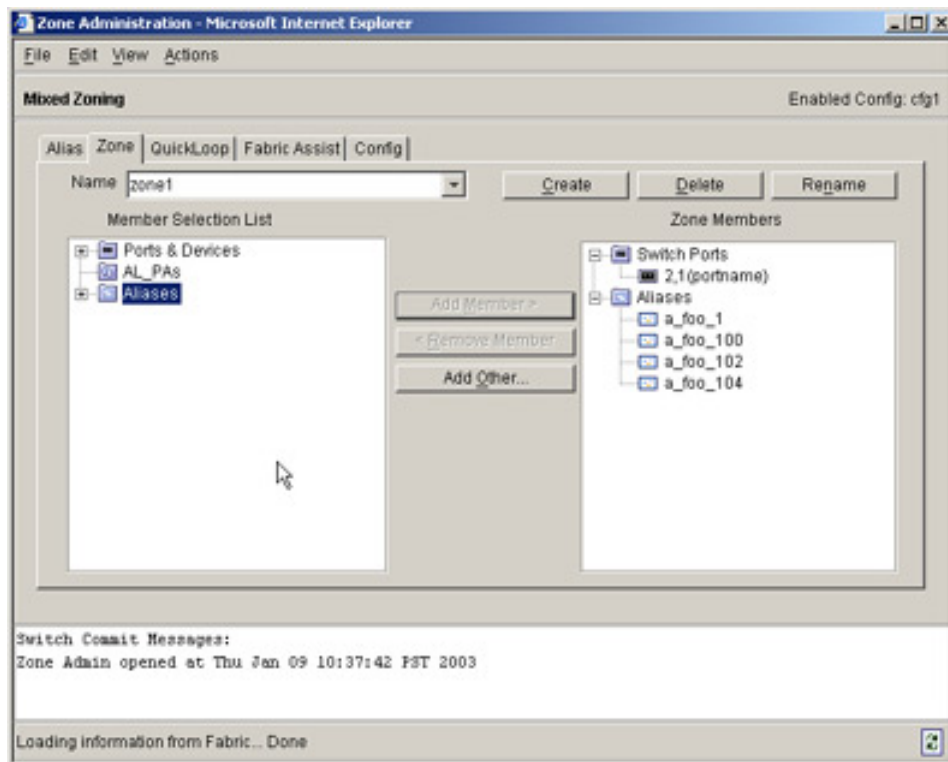
Table 78: Alias tab component descriptions

Component	Description
Name pull-down menu	Shows existing alias names from the pull-down menu.
Create button	Click to create a new alias. A dialog box displays. Enter the name of the new alias. All names must be unique and contain no spaces.
Delete button	Click to delete the alias selected in the Name field. Deleting an alias automatically removes it from all zones, and configurations.
Rename button	Click to rename the alias selected in the Name field. A dialog box displays in which you can rename the alias. Renaming an alias automatically renames it in all zones and configurations.
Member Selection List field	Use to select available items from the Member Selection List . In Mixed Zones you can select Ports, WWNs, and AL_PAs.
Alias Members field	Shows the current members of an alias.
Add FA Host button	Click to add a Fabric Assist host to the member list.
Add Member button	Click to add a member from the Member Selection List to the Alias Members field. You must select a member within Member Selection List for this button to become active.
Remove Member button	Click to remove a member from the Alias Members list. You must select a member within Alias Members for this button to become active.
Add Other button <ul style="list-style-type: none"> ■ Other ■ Other Port ■ Other WWN ■ Other AL_PA 	Click to add a port, WWN or AL_PA that is not currently part of the fabric. A dialog box displays for you to type in the host that is not a member of the fabric.
Add Other Host button <ul style="list-style-type: none"> ■ Other Host ■ Other Port Host ■ Other WWN Host 	Click to add a host that is not currently part of the fabric. The button displayed depends on the Zoning method that you have selected.

Zone tab

Use the **Zone** tab to create, modify, rename, or delete zones in the Zoning database. An example of a **Zone** tab is shown in [Figure 44](#).

Figure 44: Zone tab in the zone administration window



Zone tab descriptions

[Table 79](#) describes the components of the **Zone** tab.

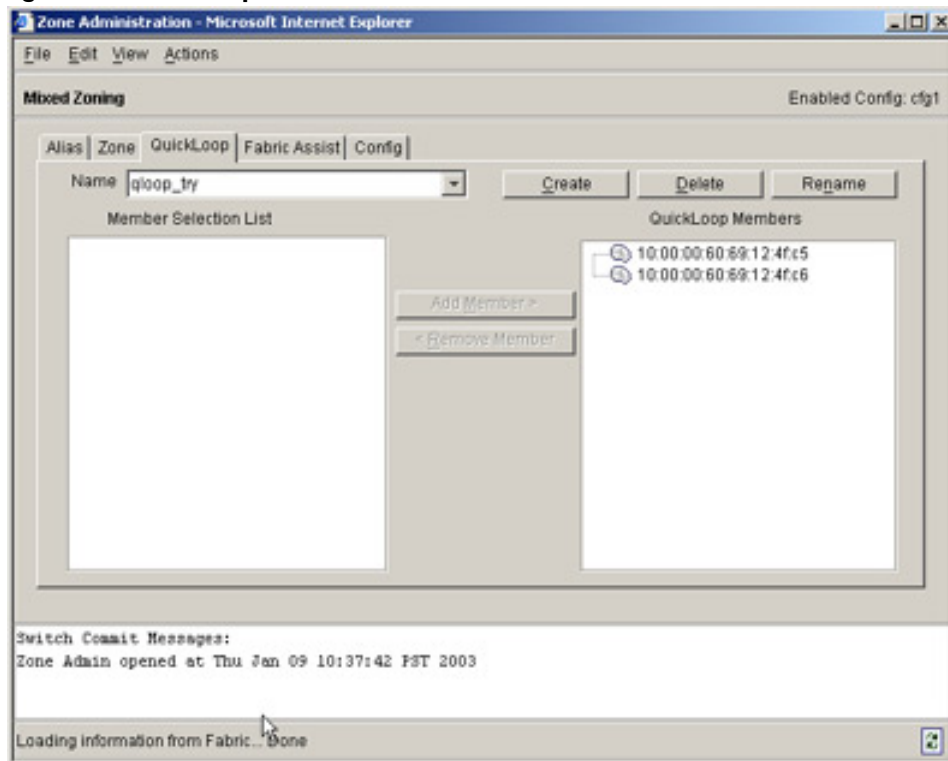
Table 79: Zone tab component descriptions

Component	Description
Name pull-down menu	Shows existing zones from the pull-down menu.
Create button	Click to create a new zone. A dialog box displays. Enter the name of the new zone. All zone names must be unique and must consist of letters, numbers or the underscore character. Spaces or special characters are not allowed in zone names, and a name cannot start with a number.
Delete button	Click to delete the zone selected in the Name field. Deleting a zone automatically removes it from all configurations.
Rename button	Click to rename the Zone selected in the Name field. A dialog box displays in which you can edit the zone name. Renaming a zone in the zone tab automatically renames it in all configurations.
Member Selection List field	Select available items from the Member Selection List .
Zone Members field	Shows the current members of a zone.
Add Member button	Click to add a member from the Member Selection List to the Zone Members field. You must select a member within Member Selection List for this button to become active.
Remove Member button	Click to remove a member from the Zone Members list. You must select a member within Zone Members for this button to become active.
Add Other <ul style="list-style-type: none"> ■ Other Port ■ Other WWN ■ Other AL_PA 	Click to add a port, WWN, or AL_PA that is not currently part of the fabric. A dialog box displays for you to type in the host that is not a member of the fabric.

QuickLoop tab

Use the **QuickLoop** tab to manage QuickLoops in the Zoning database. For more information regarding QuickLoops, refer to your firmware documentation. An example of the **QuickLoop** tab is shown in [Figure 45](#).

Figure 45: QuickLoop tab in the zone administration window



QuickLoop tab descriptions

[Table 80](#) describes the components of the **QuickLoop** tab.

Table 80: QuickLoop tab component descriptions

Component	Description
Name pull-down menu	Shows existing QuickLoops.
Create button	Click to create a new QuickLoop. A dialog box displays. Enter the name of the new QuickLoop. All names must be unique and contain no spaces.
Delete button	Click to delete the QuickLoop selected in the Name pull-down menu. Deleting a QuickLoop automatically removes it from all configurations.
Rename button	Click to rename the QuickLoop selected in the Name pull-down menu. A dialog box displays in which you can edit the QuickLoop name. Renaming a QuickLoop automatically renames it in all configurations.
Member Selection List field	Select available members from the Member Selection List . QuickLoop is not supported on switches that run firmware v4.x. However you can manage a QuickLoop from these switches if it is attached to another switch in the fabric.
QuickLoop Members field	Shows the current members of a QuickLoop.
Add Member button	Click to add a member from the Member Selection List to the QuickLoop Members field. You must select a member within Member Selection List for this button to become active.
Remove Member button	Click to remove a member from the QuickLoop Members field. You must select a member within QuickLoop Members field for this button to become active.

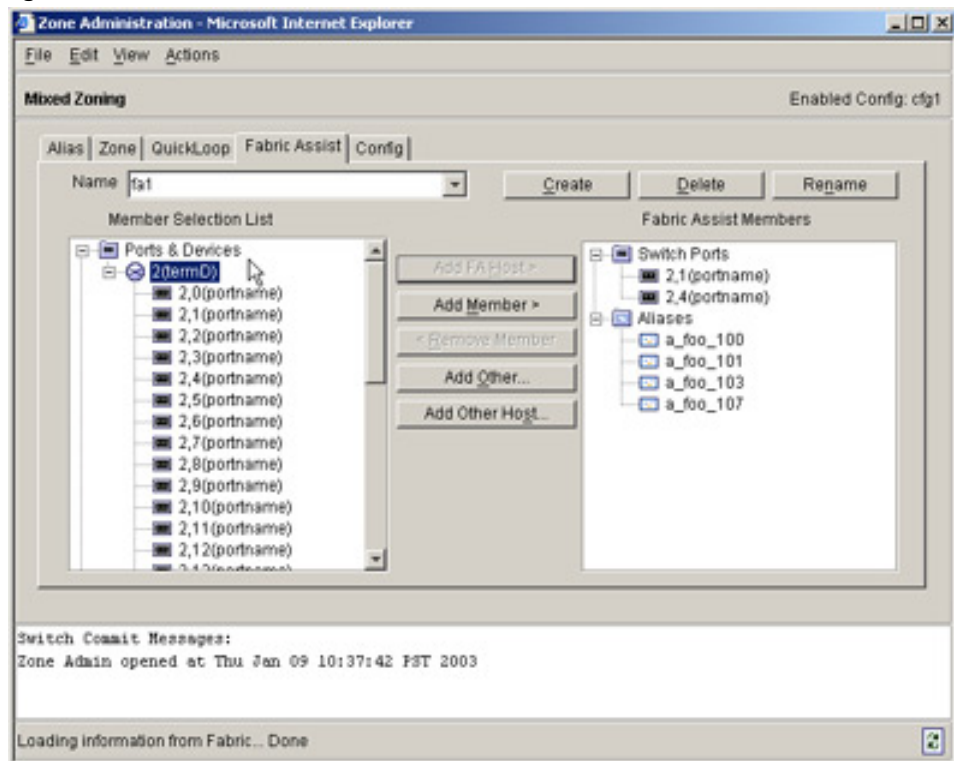
Fabric assist tab

Use the **Fabric Assist** tab to create and manage Fabric Assist zones. Fabric Assist allows private hosts to communicate with public targets across a switched fabric. Fabric Assist also allows private hosts to communicate with public targets that do not reside in the same switched fabric.

Note: You cannot create a fabric zone without a fabric host. You cannot access the **Fabric Assist** tab if you selected **View > AL_PA Zoning**.

An example of a Fabric Assist tab is shown in [Figure 46](#).

Figure 46: Fabric assist tab in the zone administration window



Fabric assist descriptions

[Table 81](#) describes the components of the **Fabric Assist** tab.

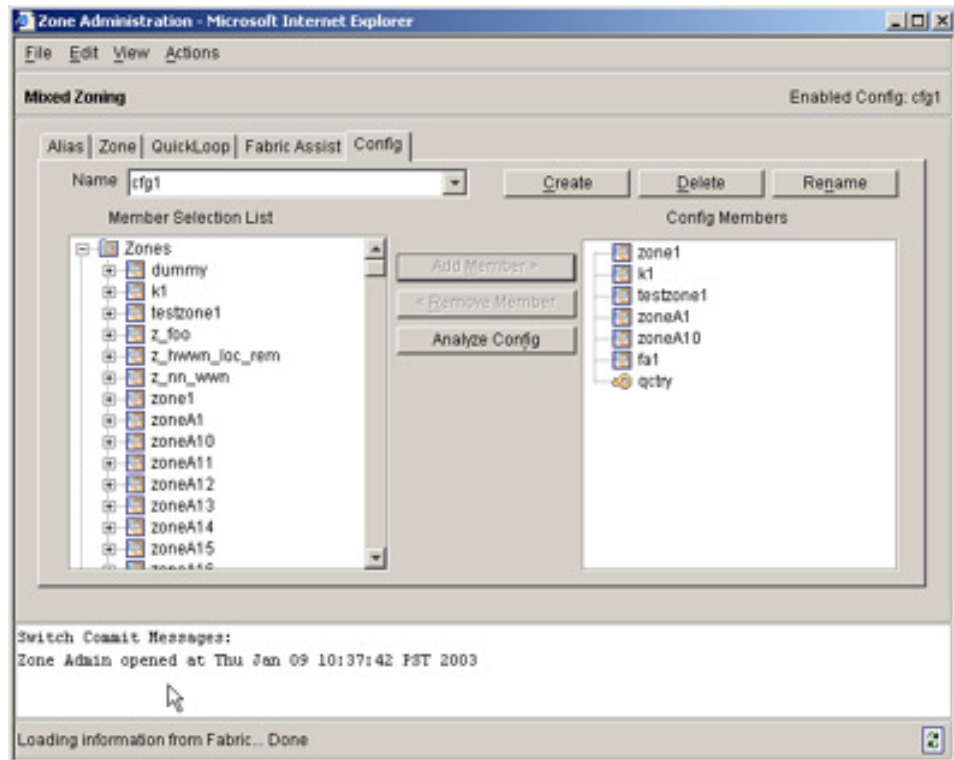
Table 81: Fabric assist components descriptions

Components	Descriptions
Name pull-down menu	Shows existing Fabric Assist zones from the pull-down menu.
Create button	Click to create a new Fabric Assist zone. A dialog box displays; Enter the name of the new Fabric Assist zone. All names must be unique and contain no spaces.
Delete button	Click to delete the Fabric Assist zone selected in the Name pull-down menu. Deleting a Fabric Assist Zone automatically removes it from configurations.
Rename button	Click to rename the Fabric Assist zone selected in the Name pull-down menu. A dialog box displays in which you can edit the Fabric Assist name. Renaming a Fabric Assist Zone automatically renames it in all configurations.
Member Selection List field	Select available items from the Member Selection List .
Fabric Assist Members field	Shows the current members of a Fabric Assist zone.
Add FA Host button	Click to add a Fabric Assist host that is not currently part of the fabric.
Add Member button	Click to add a member from the Member Selection List to the Fabric Assist Members field. You must select a member within the Member Selection List for this button to become active.
Remove Member button	Click to remove a member from the Fabric Assist Members list. You must select a member within the Fabric Assist Members field for this button to become active.
Add Other button <ul style="list-style-type: none"> ■ Other ■ Other Port ■ Other WWN ■ Other AL_PA 	Click to add a Fabric Assist zone that is not currently part of the fabric. A dialog box displays for you to type in the host that is not a member of the fabric.
Add Other Host button <ul style="list-style-type: none"> ■ Other Host ■ Other Port Host ■ Other WWN Host 	Click to add a host that is not currently part of the fabric. The button displayed depends on the Zoning method that you have selected.

Config tab

Use the **Config** tab to create and manage configurations. An example of the **Config** tab is shown in [Figure 47](#).

Figure 47: Config tab in the zone administration window



Config tab descriptions

[Table 82](#) describes the components of the **Config** tab.

Table 82: Configuration tab component descriptions

Component	Description
Name pull-down menu	Select an existing configuration from the pull-down menu to display or modify.
Create button	Click to create a new configuration. A dialog box displays; enter the name of the new configuration. All names must be unique and contain no spaces.
Delete button	Click to delete the configuration selected in the Name pull-down menu. Deleting a configuration does not delete any of the elements contained in that configuration.
Rename button	Click to rename the configuration selected in the Name pull-down menu. A dialog box displays in which you can edit the configuration name.
Member Selection List field	Select available items from the Member Selection List .
Config Members field	Shows the current config members.
Add Member button	Click to add a member from the Member Selection List to the Config Members field. You must select a member within the Member Selection List for this button to become active.
Remove Member button	Click to remove a member from the Config Members List . You must select a member within the Config Members field for this button to become active.
Analyze Config button	<p>Analyzes the configuration that is selected along with its member zones. A report is created that lists:</p> <ul style="list-style-type: none"> ■ SAN components (ports, WWNs, and AL_PAs) that are not included in the configuration. ■ SAN components (ports, WWNs, and AL_PAs) that are contained in the configuration but not in the fabric.

Fabric Watch Reference



This appendix discusses the following major topics:

- [Alarm notification tab](#) on page 288
- [Threshold configuration tab](#) on page 290
- [Email configuration tab](#) on page 292

Introduction

The **Fabric Watch** window provides the fields you need to view and configure threshold and alarm settings. [Table 83](#) describes the components of the window.

Table 83: Fabric Watch window components

Component	Description
Fabric Watch navigation tree	Shows the various Fabric Watch classes that you can configure. For more information on how to configure Fabric Watch, see “How to use Fabric Watch” on page 119.
Alarm Notification tab	Shows Fabric Watch alarms that fabric events have triggered. For more information, see “Alarm notification tab” on page 288.
Threshold Configuration tab	Lets you configure threshold boundaries, traits, and alarms. For more information, see “Threshold configuration tab” on page 290.
Email Configuration tab	Lets you configure the Fabric Watch email alert alarm. For more information, see “Email configuration tab” on page 292.

Alarm notification tab

Use the **Alarm Notification** tab of the **Fabric Watch** window to view the information for all Fabric Watch elements and classes. The **Alarm Notification** tab polls current events from Fabric Watch and refreshes the display according to the threshold configuration. [Table 84](#) describes the components of the **Alarm Notifications** tab.

Table 84: Alarm notification tab component descriptions

Component	Description
Selected Area pull-down menu	Shows the configurable areas in the pull-down menu. The items listed change, depending on the item selected in the navigation tree.
Name column	Shows the name of the alarm. Threshold names consist of the following three parts, with no separators: <ol style="list-style-type: none">1. Class name abbreviation2. Area name abbreviation3. Element index number
State column	Shows the severity of the alarm that governs what kind of traps Fabric Watch employs as a response to an event. The State of the alarm can be Informative, Normal, or Faulty.
Reason column	Shows the reason why an alarm notification was sent, such as Started, Changed, Exceeded, Below, Above, or In between.
Last Value column	The value of a counter (behavior variable) prior to the alarm.
Current Value column	The value of the counter (behavior variable) that set off the alarms.
Time column	The time and date the notification was sent from the switch.

Threshold configuration tab

Use the **Threshold Configuration** tab to view and configure Fabric Watch thresholds for the Fabric Watch class that you select in the **Fabric Watch** navigation tree. [Table 85](#) describes the components of the **Threshold Configuration** tab.

Table 85: Threshold configuration tab components

Component	Description
Select Area pull-down menu	Lists the areas of thresholds that you can configure. The areas that display in the pull-down menu depend on the class that you select from the Fabric Watch navigation tree.
Area Configuration tab	Provides fields to configure Fabric Watch threshold boundaries and alarms. For more information, see “Area configuration tab” on page 290.
Element Configuration tab	Provides fields to configure Fabric Watch threshold traits. For more information, see “Element configuration tab” on page 291.
Configuration Report tab	Shows the Fabric Watch settings for the class that you select from the Fabric Watch navigation tree. For more information, see “Configuration report tab” on page 292.

Area configuration tab

[Table 86](#) describes the components of the **Area Configuration** tab.

Table 86: Area configuration components

Component	Description
Boundary Partition	
Unit field	Set or display the selected unit values used for the chosen area. Depending on the area of interest, this is figured in units of “downs, reconfigs, errors, changes, logins”, and so forth.
High field	Set or display the number of high boundaries (the highest limit at which an element does not trigger an event) for the selected area.
BufferSize field	Set or display the threshold boundary buffer size of the selected area.
TimeBase pull-down menu	Set or display the basic unit of time in which events are recorded for the selected area. The units available from the pull-down menu are: none, second, minute, hour, or day.

Table 86: Area configuration components (Continued)

Component	Description
Low field	Set or display the number of low boundaries (the lowest limit at which an element does not trigger an event) for the selected area.
Select Boundary Level pull-down menu	Select either a default or custom setting for the boundary levels from the pull-down menu. The default values are shown in parenthesis.
Alarm Setting Partition	
Alarm Notification Mechanisms checkboxes.	Select Alarm settings for Errorlog, SNMP, RAN, Portlog and Email to be active on the switch side.
Select Alarm Level pull-down menu	Select either a custom or default setting for the alarm level from the pull-down. This setting is then active on the switch side menu.

Element configuration tab

[Table 87](#) describes the components of the **Element Configuration** tab.

Table 87: Element configuration tab components

Component	Description
Select Element pull-down menu	Use the pull-down menu to chose a specific element to configure.
Status Partition	
Enable radio button	Select the radio button to enable alarms.
Disable radio button	Select the radio button to disable alarms.
Behavior Type Partition	
Triggered radio button	Select the Triggered Behavior mode if you want Fabric Watch to register an event when a variable exceeds a threshold. An event is not triggered again until the variable falls and exceeds the threshold again.
Continuous radio button	Select Continuous mode if you want Fabric Watch to register an event when a variable exceeds a threshold and continue to register an event for every time interval.
Time Interval Partition	
Time Interval (in secs) pull-down menu	Select the amount of time (in seconds) that you want Fabric Watch to poll for a new event.

Configuration report tab

[Table 88](#) describes the contents of the **Configuration Report** tab.

Table 88: Threshold configuration report component descriptions

Component	Description
Configuration for Class	The class that is being reported. The item selected in the Navigation tree displays here.
Begin Area	The current settings configured for the selected area. see Table 87 .
Begin Element	The current settings configured for the selected area.
Changed	Thresholds that have changed.
Exceeded	Thresholds that have been exceeded.
Below	Thresholds that have fallen below the configured level.
Above	Thresholds that have risen above the configured levels.
In between	Thresholds within the configured level.

Email configuration tab

Use the **Email Configuration** tab to enable and configure email alarm notifications. A different email configuration can be set for each Fabric Watch class. For example, one email notification can be set for SFPs and another can be set for E-Ports (see the navigation tree).

The Fabric Watch Email Configuration components are described in [Table 89](#)

Table 89: Email configuration component descriptions

Component	Description
Mail To: field	Accepts the email address that Fabric Watch emails when an event occurs that triggers an email alert.
Mail Status partition	Lets you enable or disable email alert.
Mail Validation partition	Gives you the option to send a test email to the recipient in the Mail To: field when you click Apply .
Apply button	Applies your configuration.
Reset button	Resets the fields to default values.

Call Home External Executable Reference



This appendix discusses Call Home executable requirements.

Introduction

The Call Home feature of Fabric Manager can accept an external executable that runs when a Call Home event occurs. If you configure an external executable, Fabric Manager passes a XML file to the executable when the event occurs. All other functionality is at your discretion.

Note: Large executables may impair the performance of your server.

Call Home executable requirements

- The executable must run on a Windows platform. You can use any type of executable as long as it is a valid executable for Windows.
- The executable must be able to handle Fabric Manager passing it a command-line argument. The argument is the name of an XML file that Call Home generates when an event occurs. For Example:

If I enter the executable **C:\executable.exe** in the **External Executable on Server** field in my Call Home window, Call Home launches **C:\executable.exe filename.xml** when an event occurs.

Any additional executable requirements depend on your needs.

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